

FIG. 1A

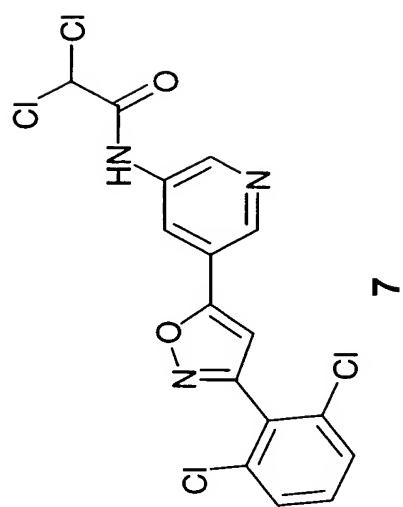
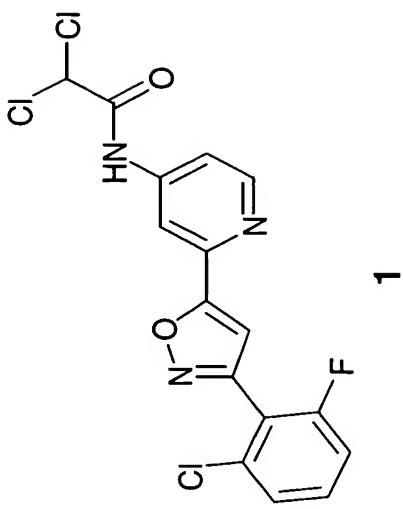
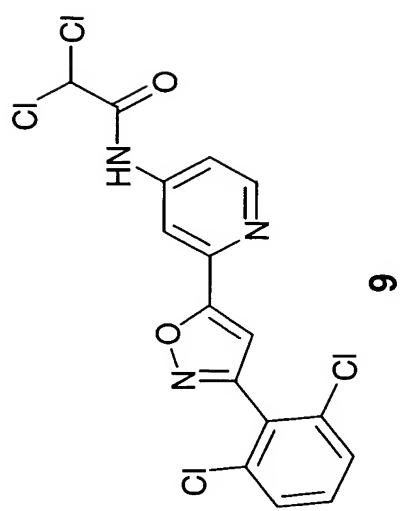
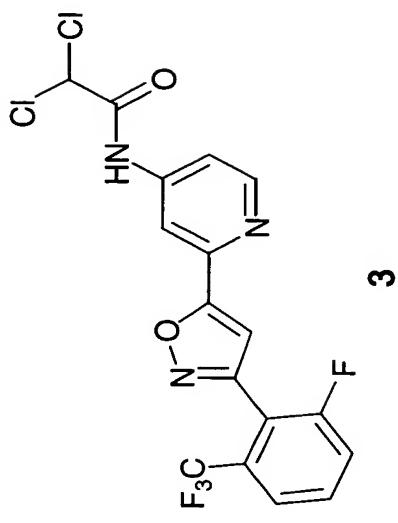
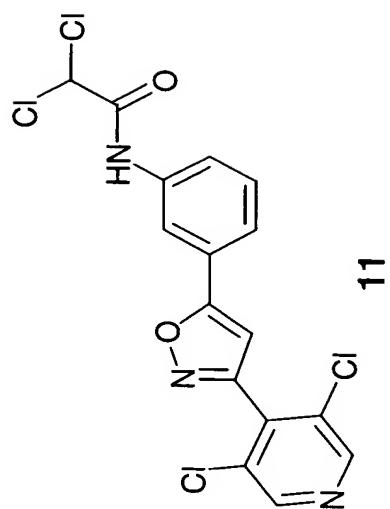
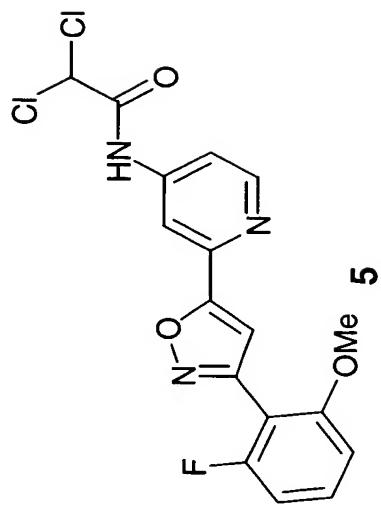


FIG. 1B

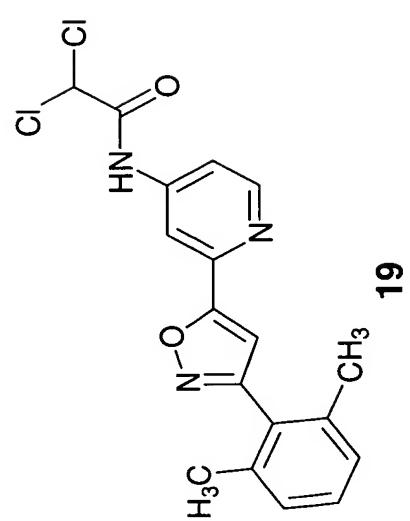
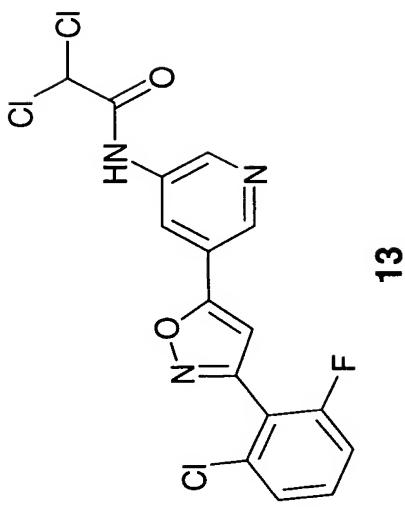
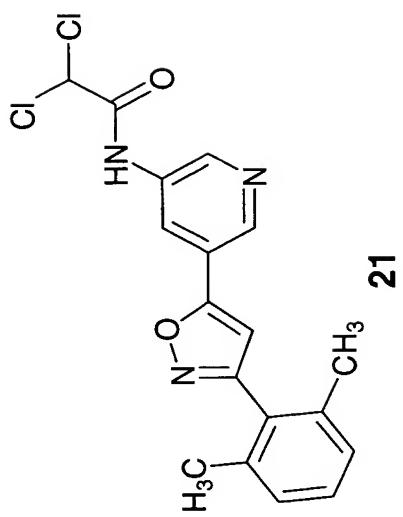
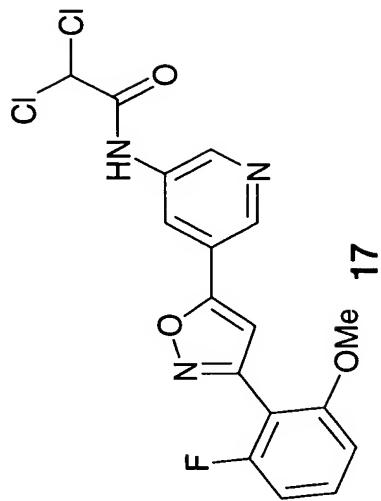
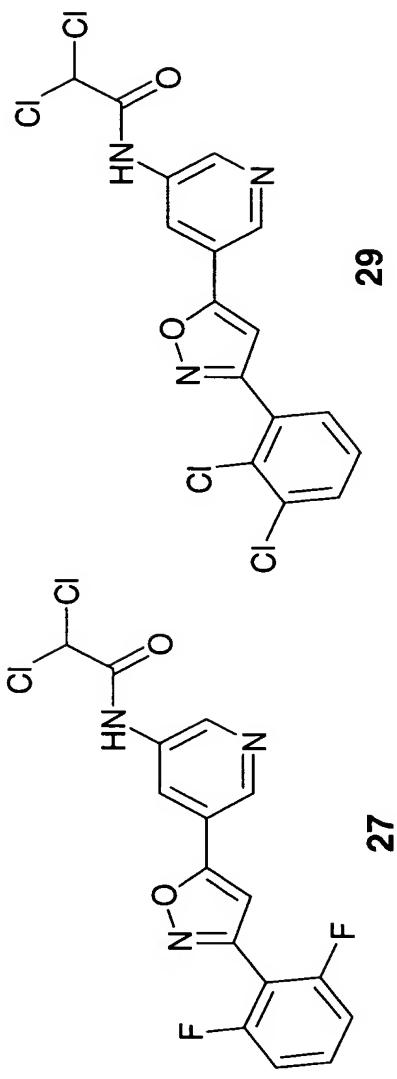
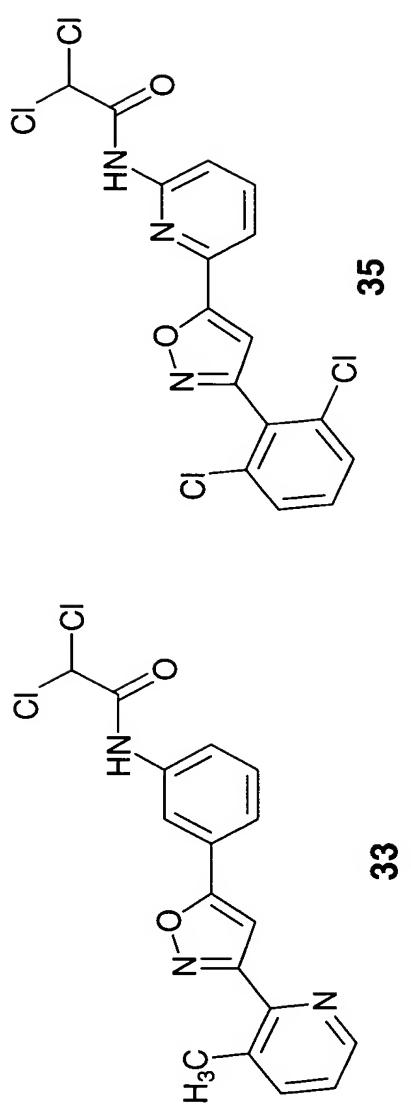


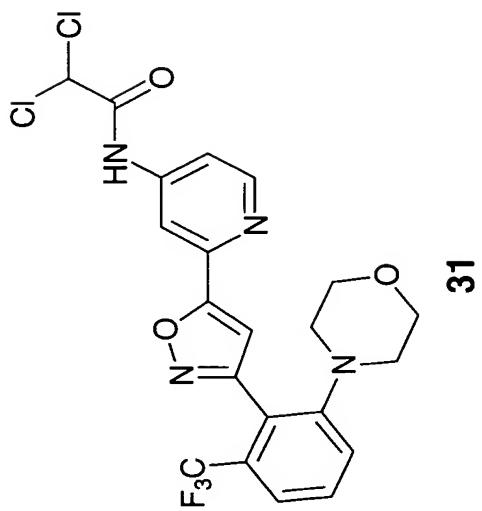
FIG. 1C



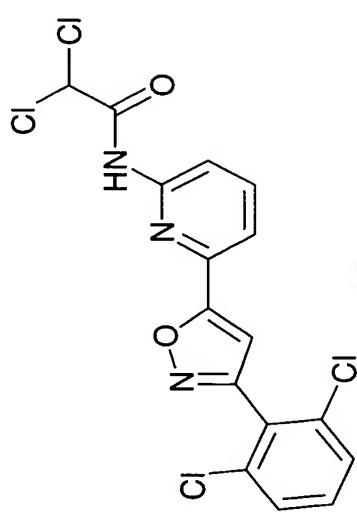
27



33



31



29

FIG. 1D

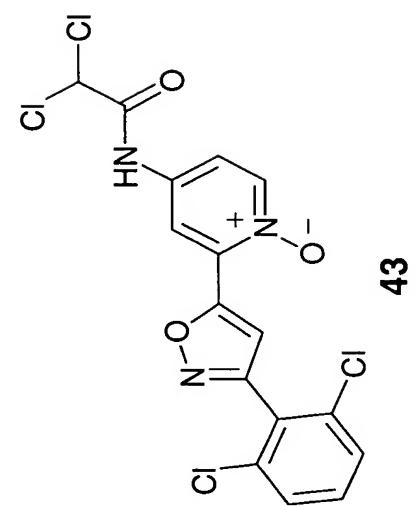
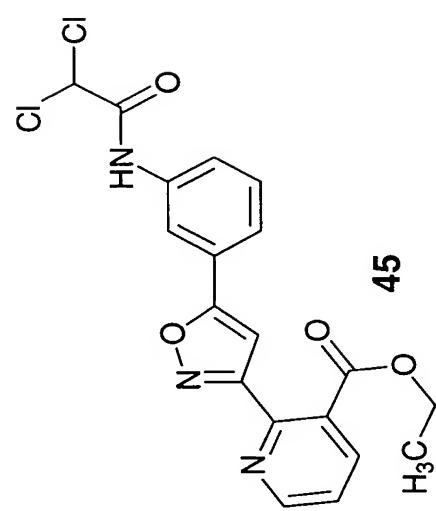
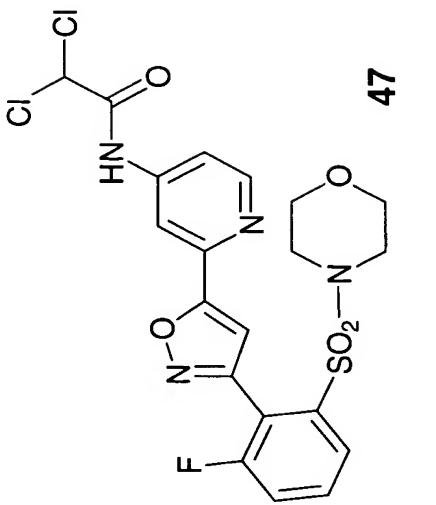
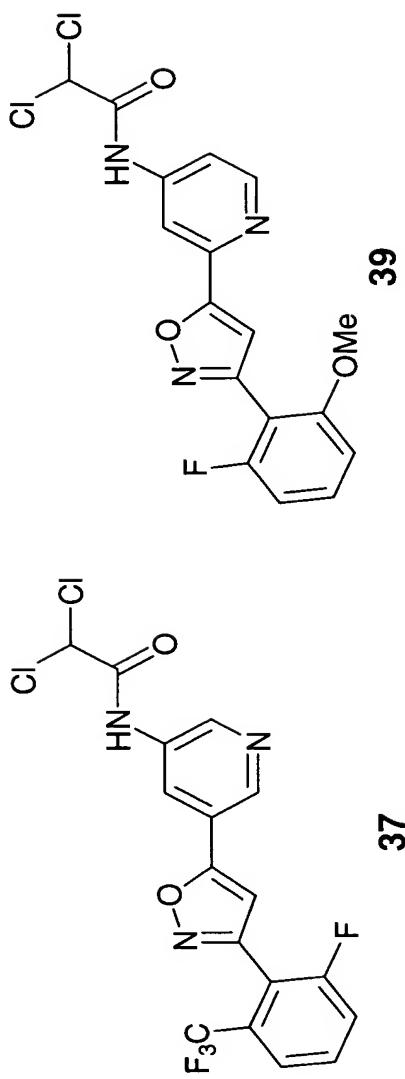


FIG. 1E

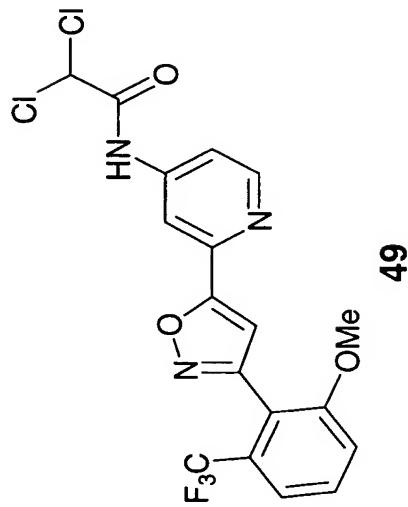
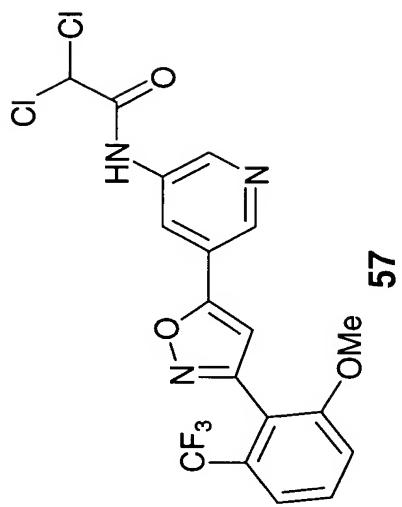
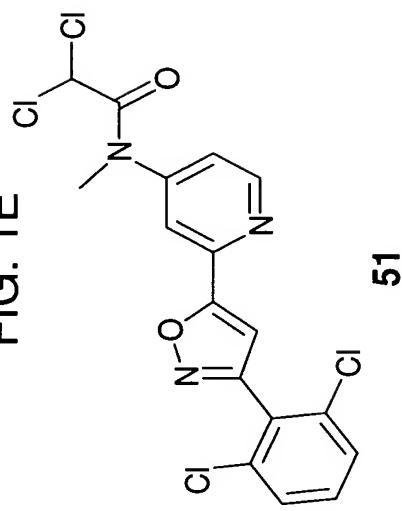
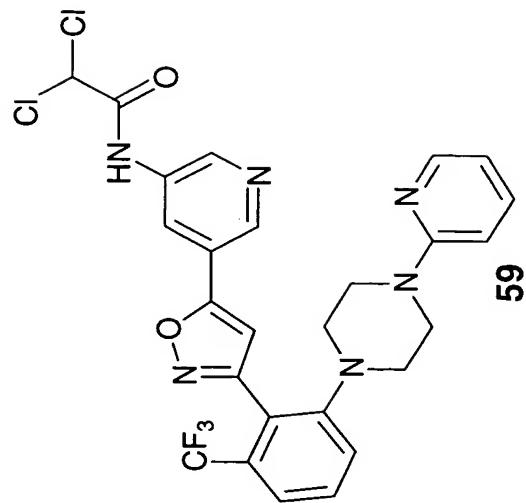
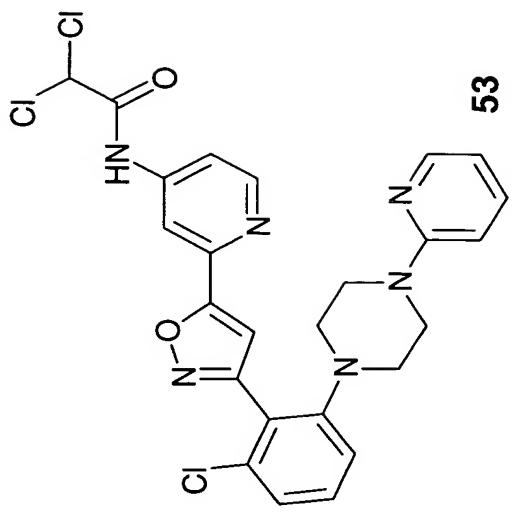


FIG. 1F

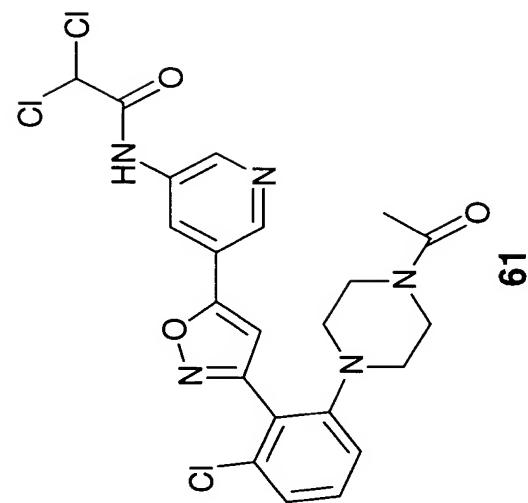
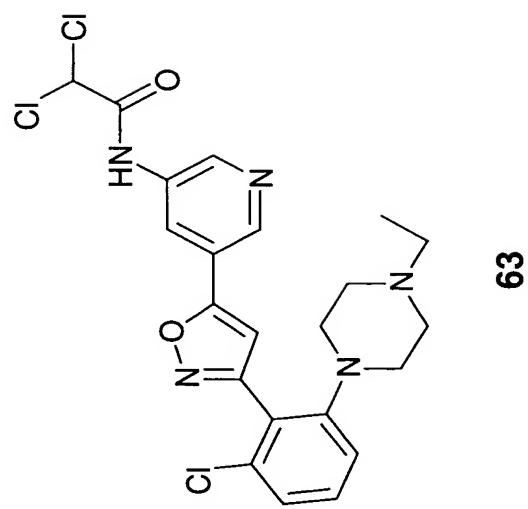


FIG. 2A

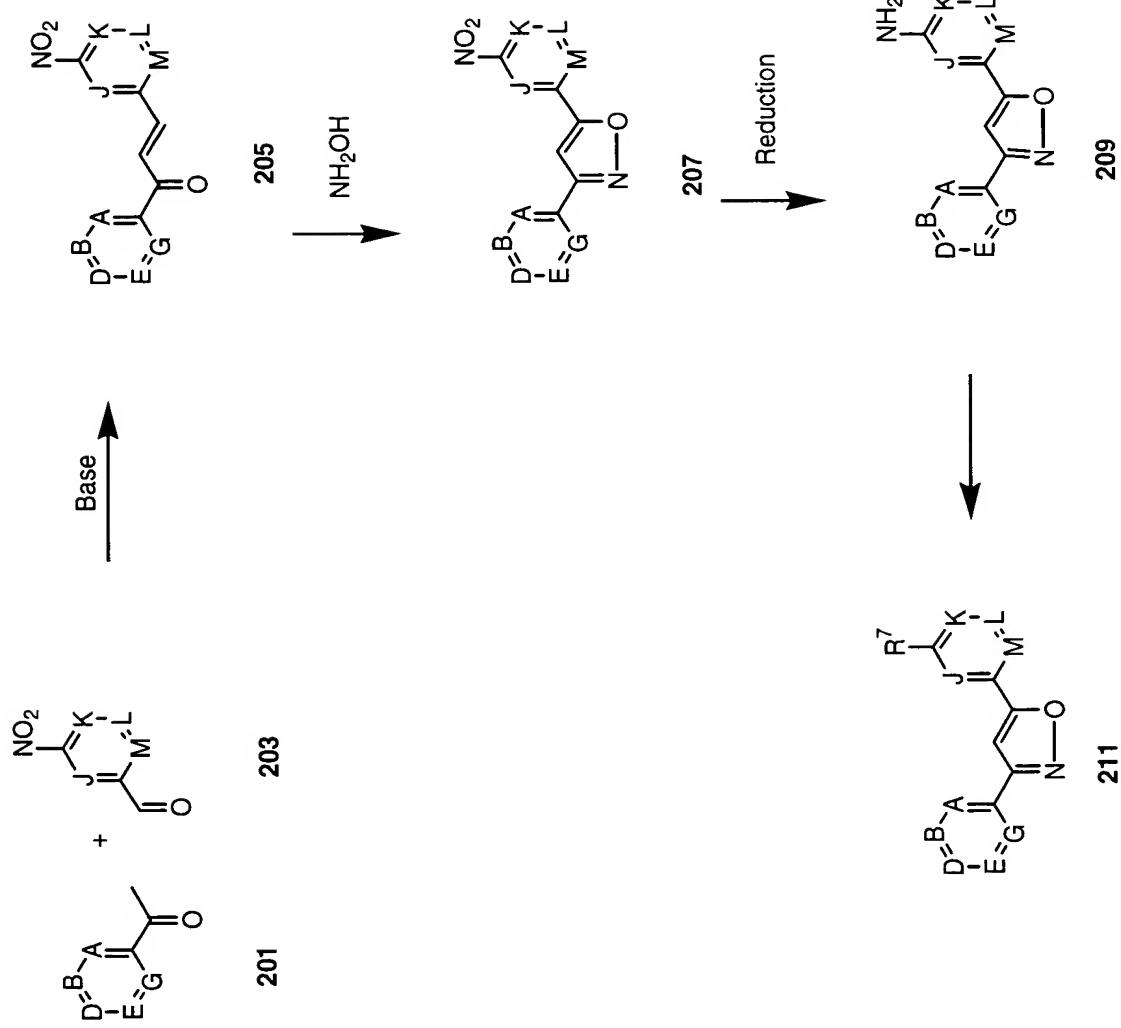


FIG. 2B

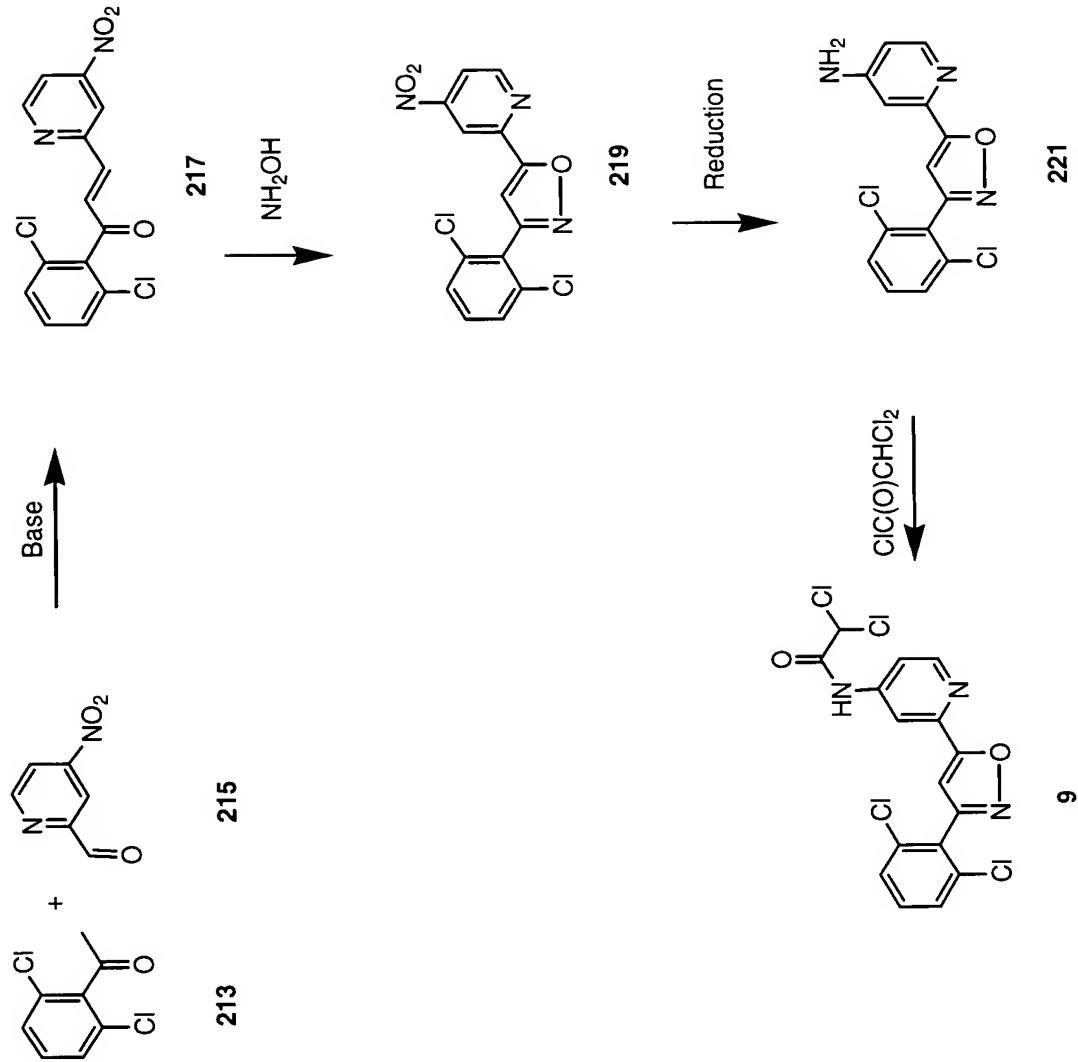
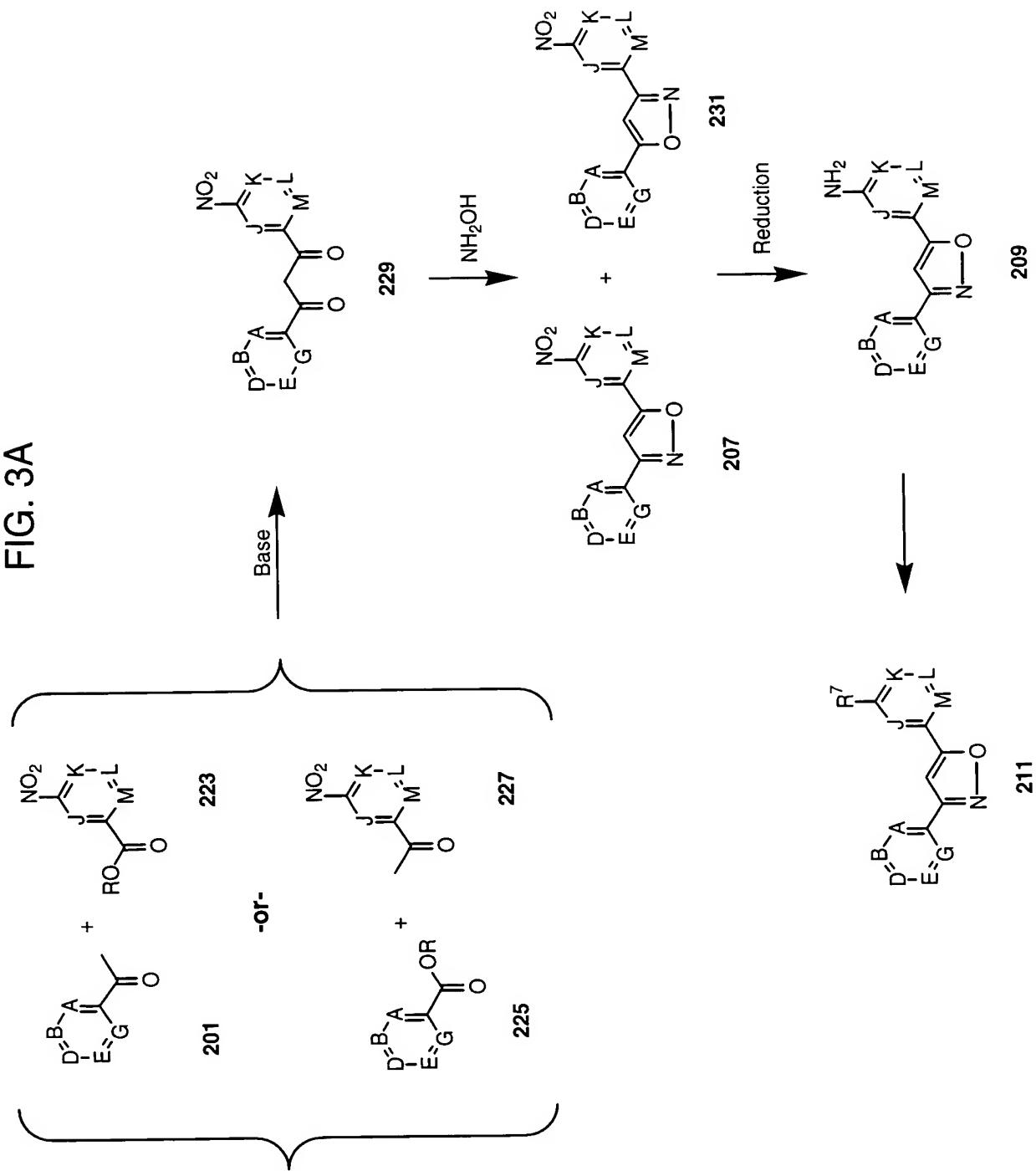


FIG. 3A



209  
207  
227  
225  
223  
201

FIG. 3B

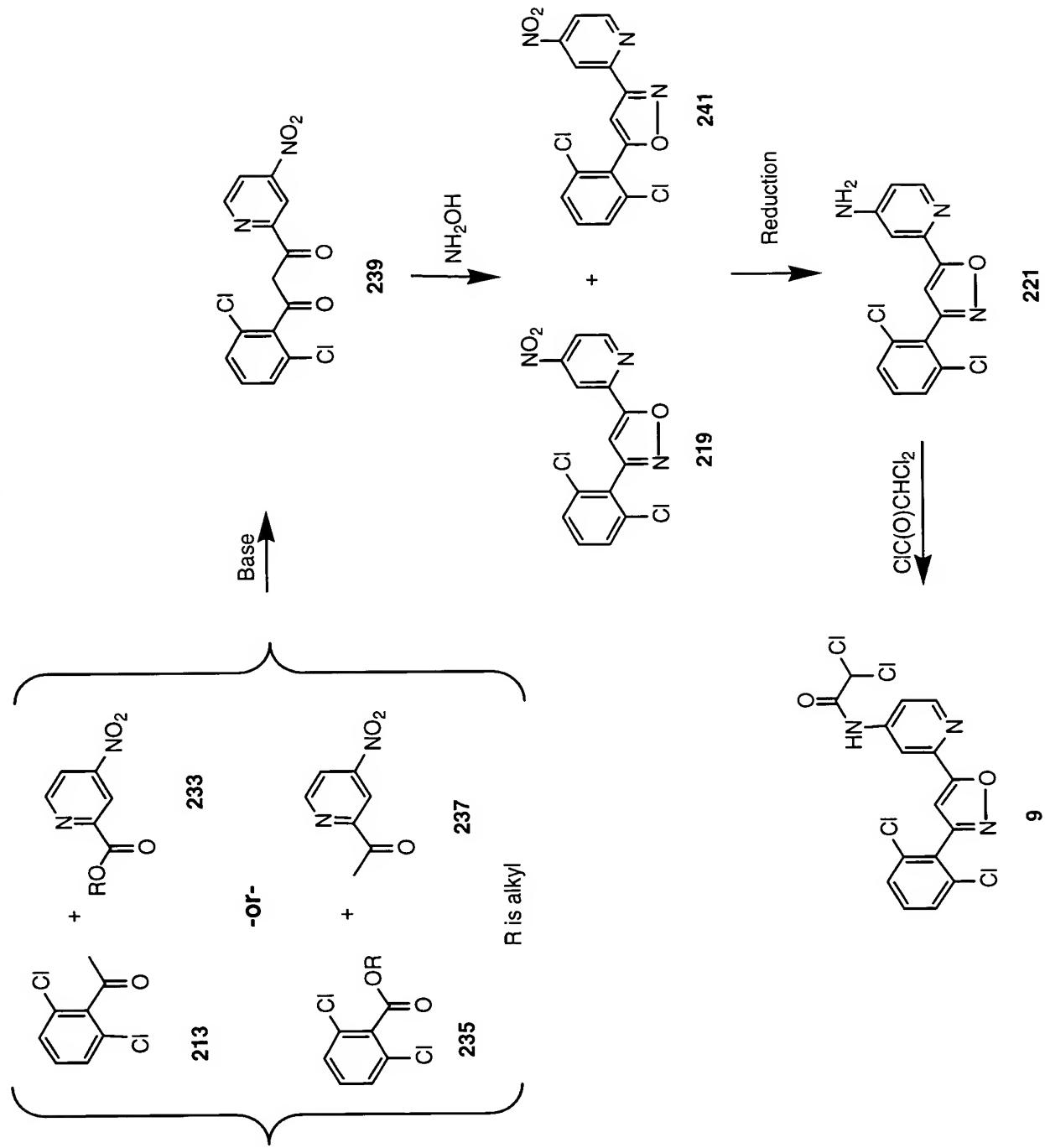


FIG. 4A

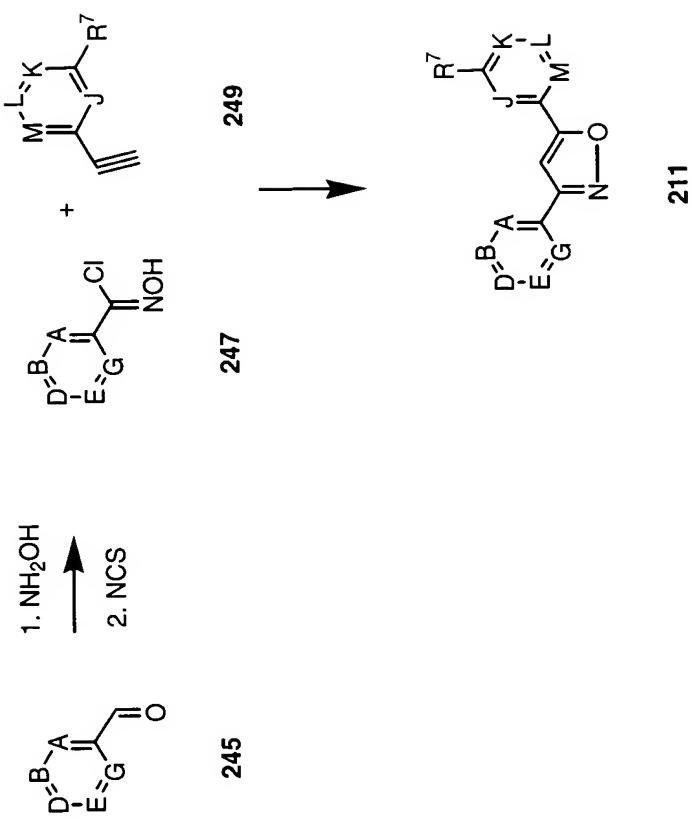


FIG. 4B

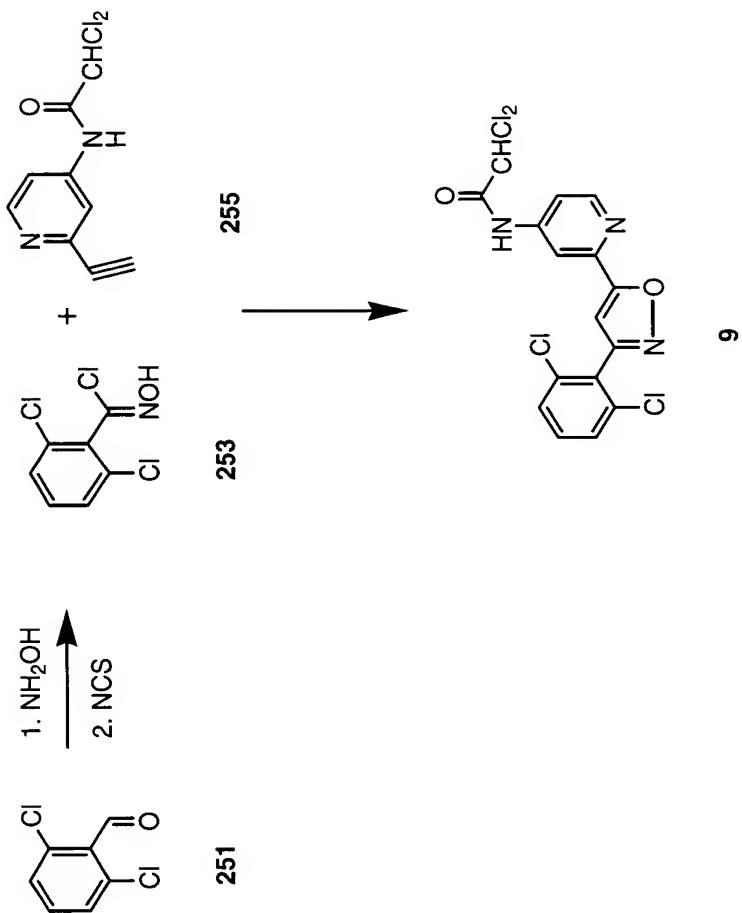


FIG. 4C

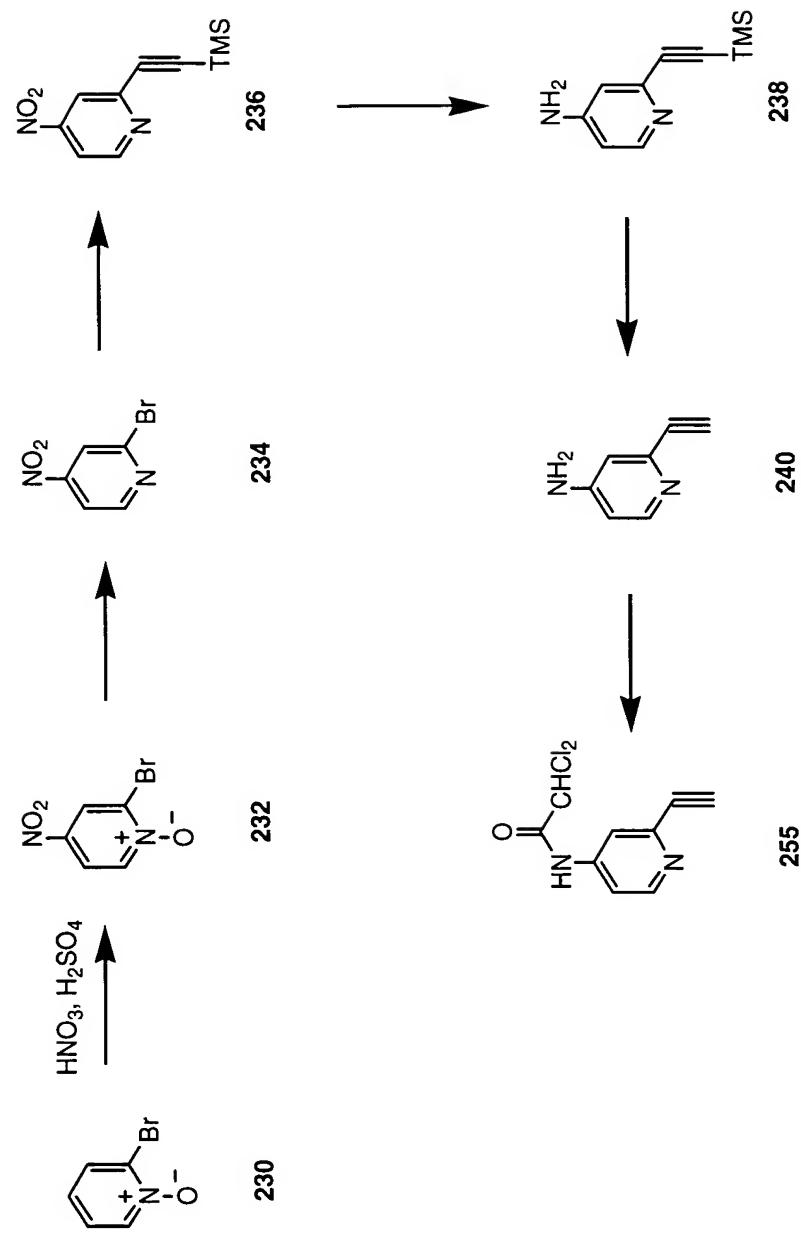


FIG. 4D

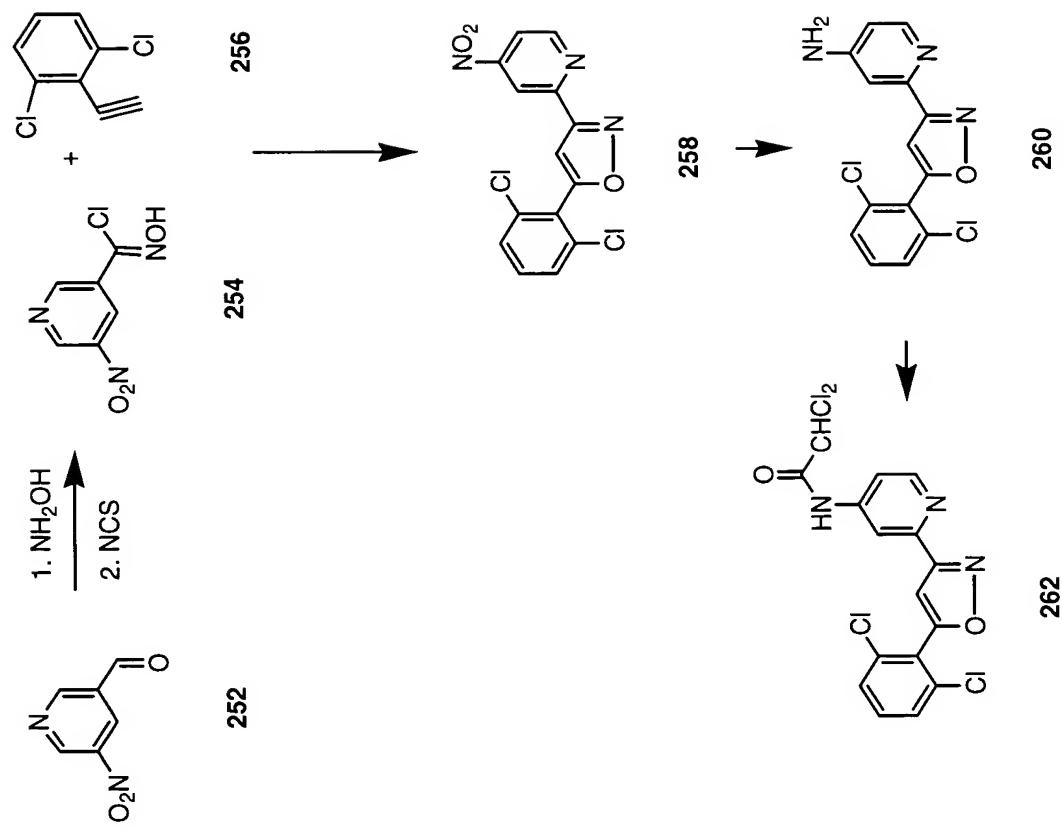


FIG. 5A

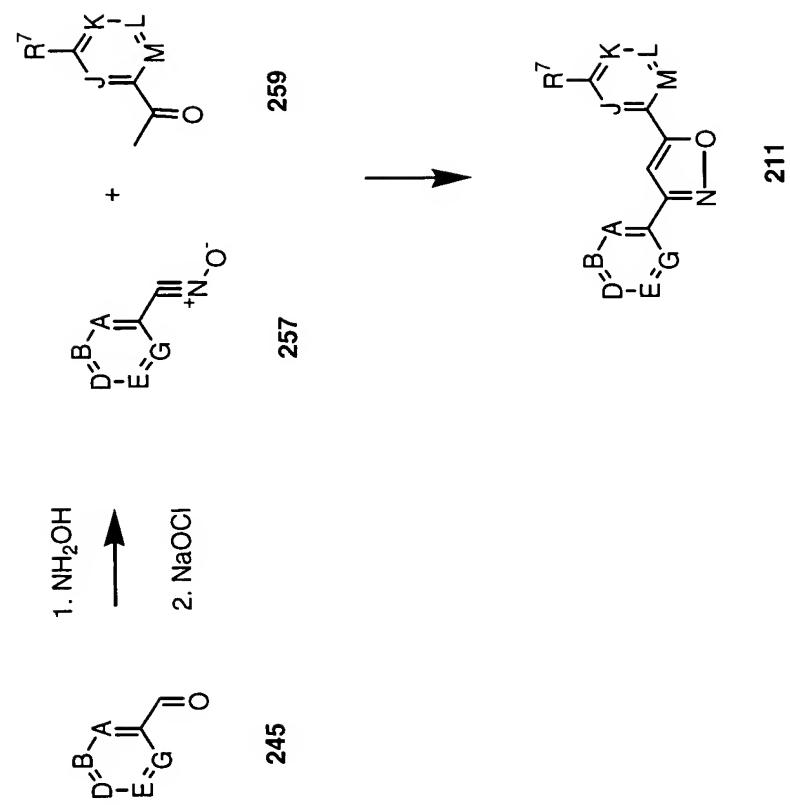


FIG. 5B

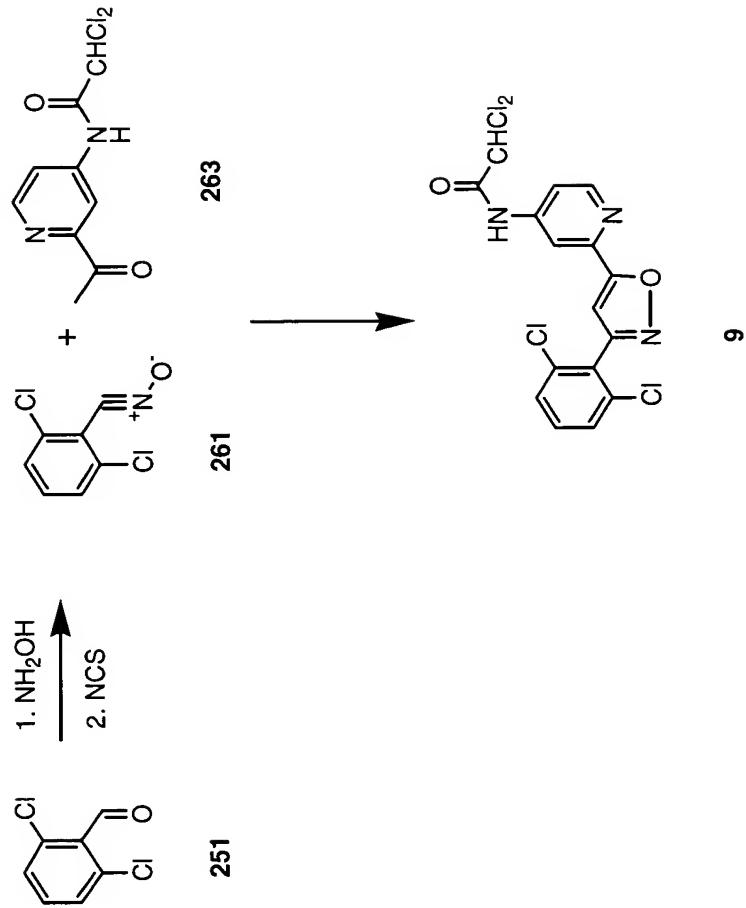


FIG. 6A

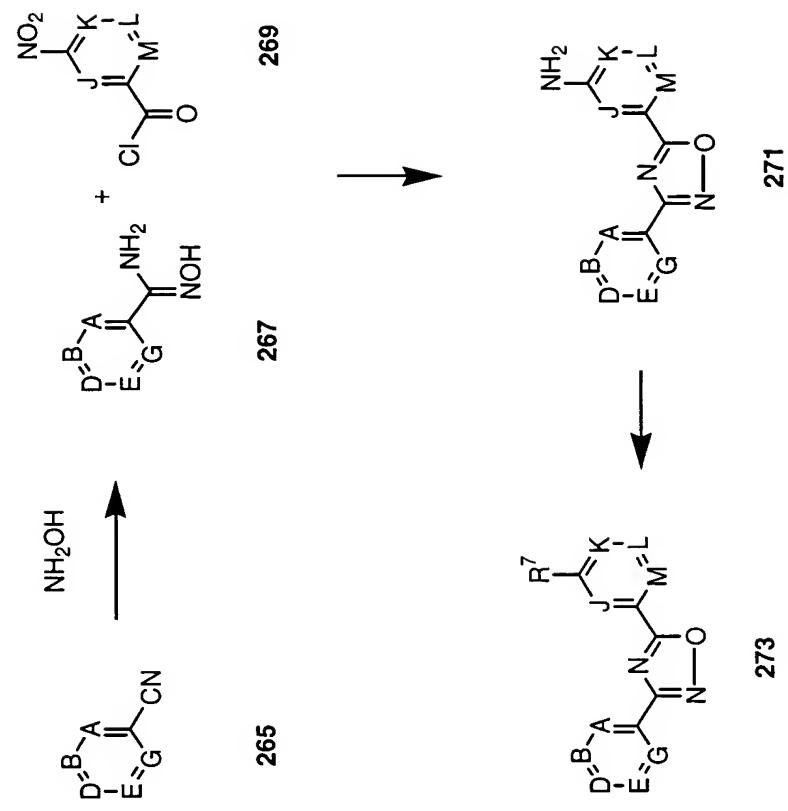


FIG. 6B

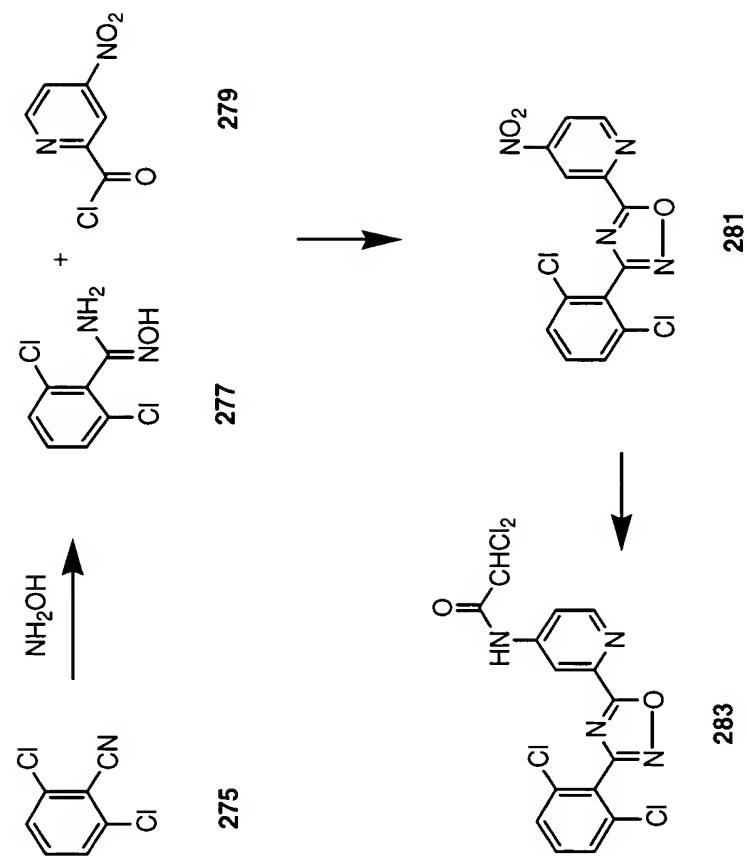


FIG. 7A

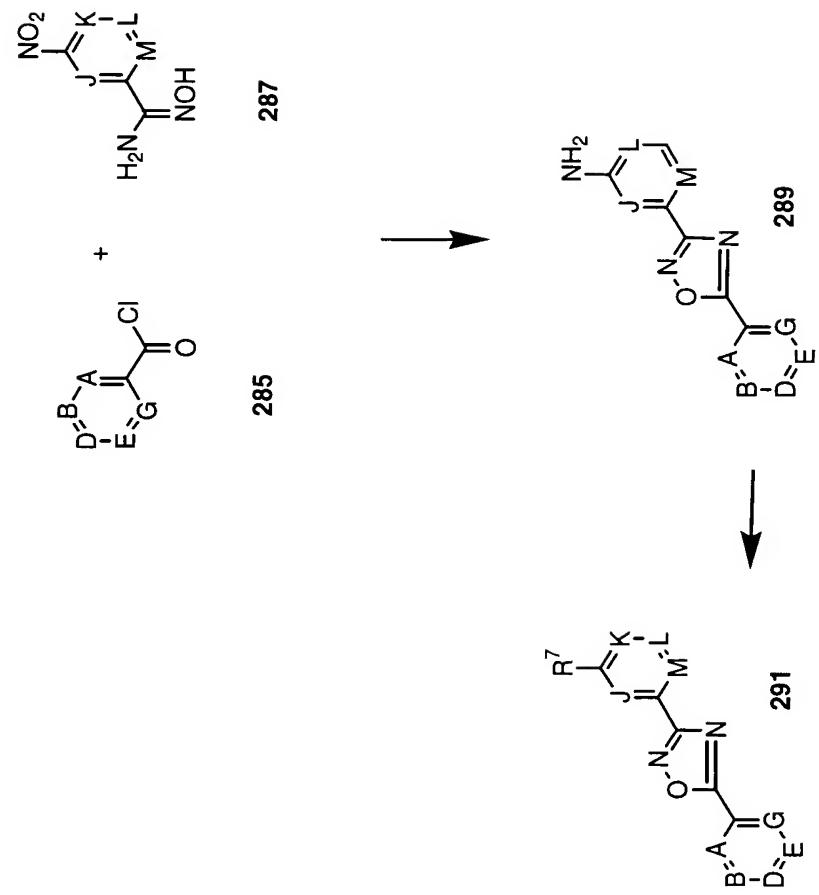


FIG. 7B

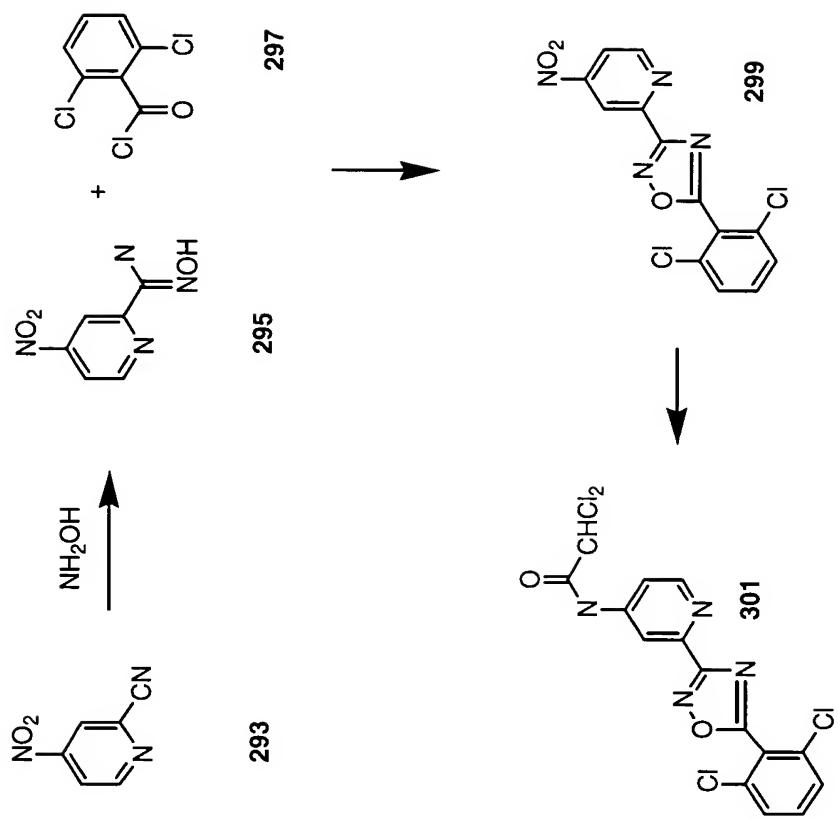


FIG. 8A

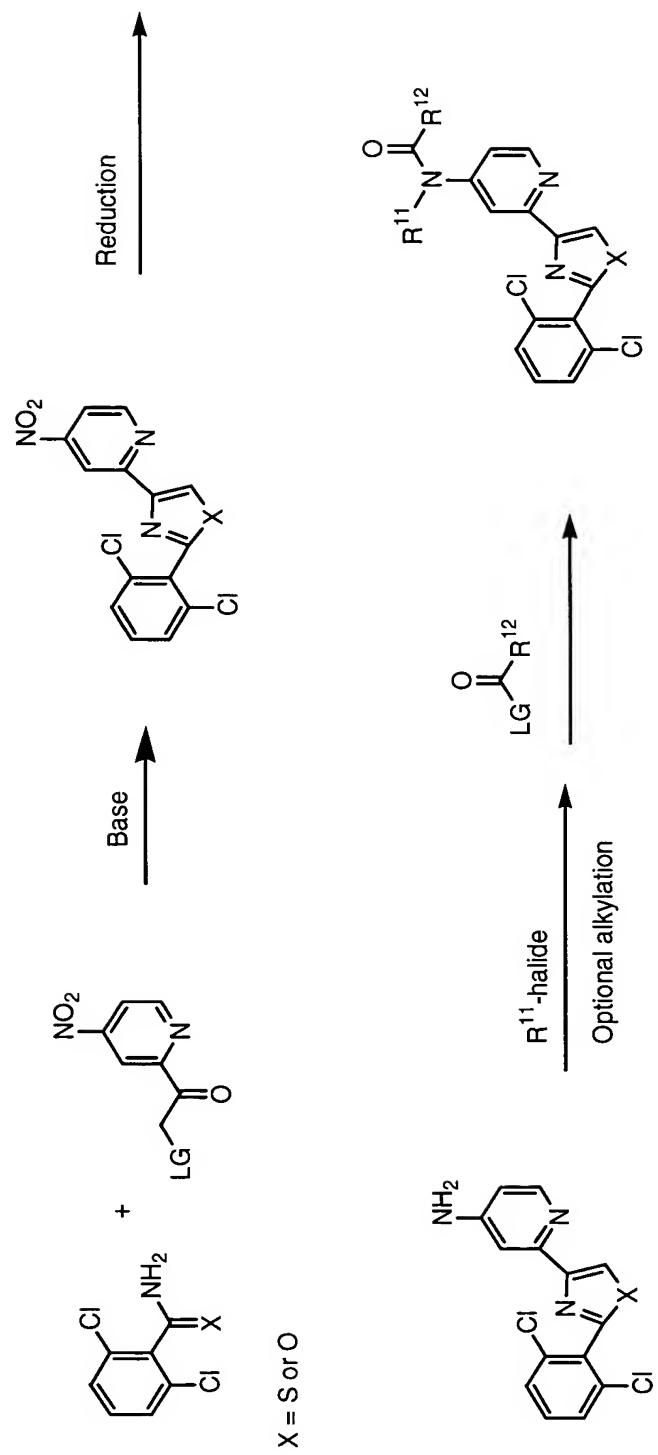


FIG. 8B

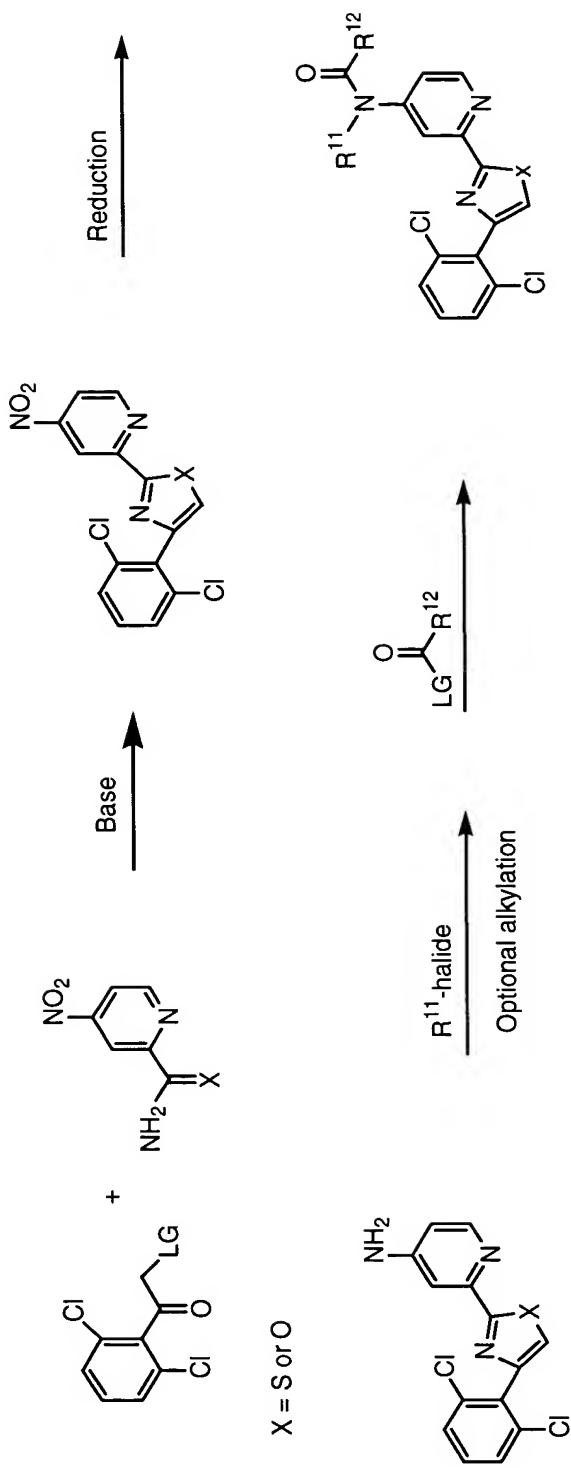


FIG. 9A

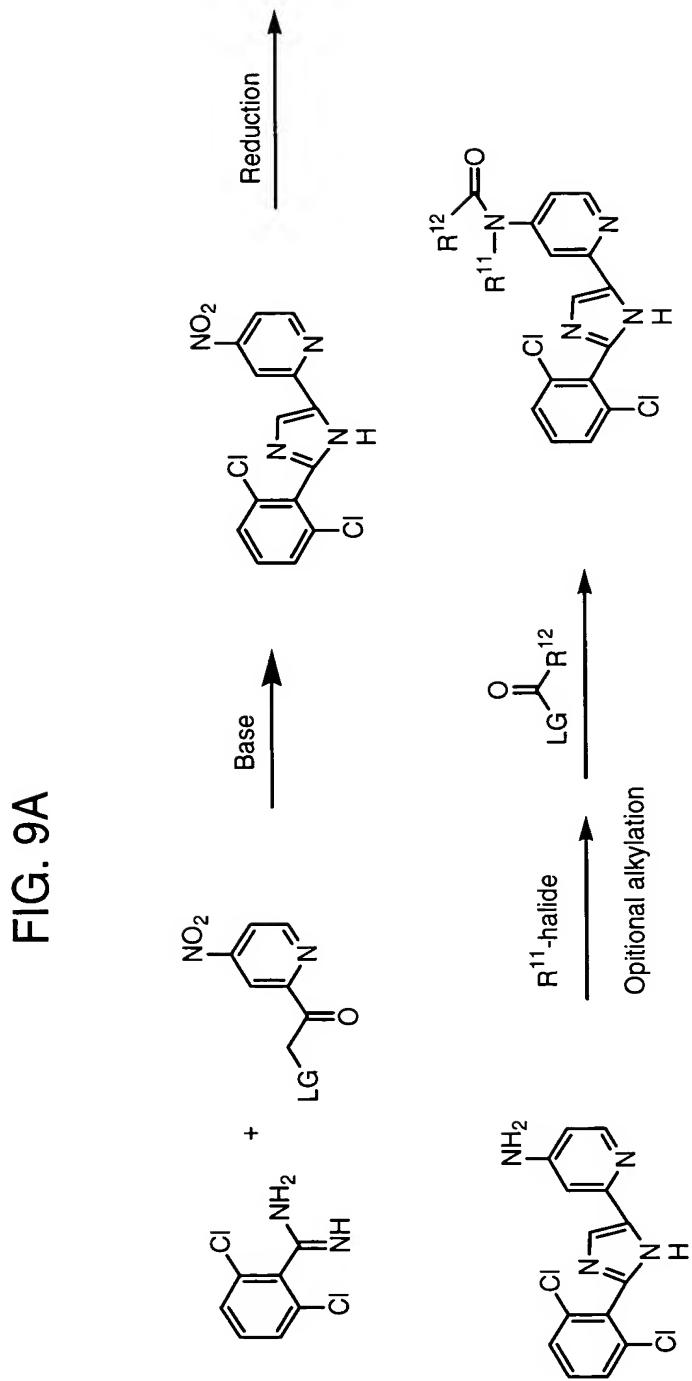


FIG. 9B

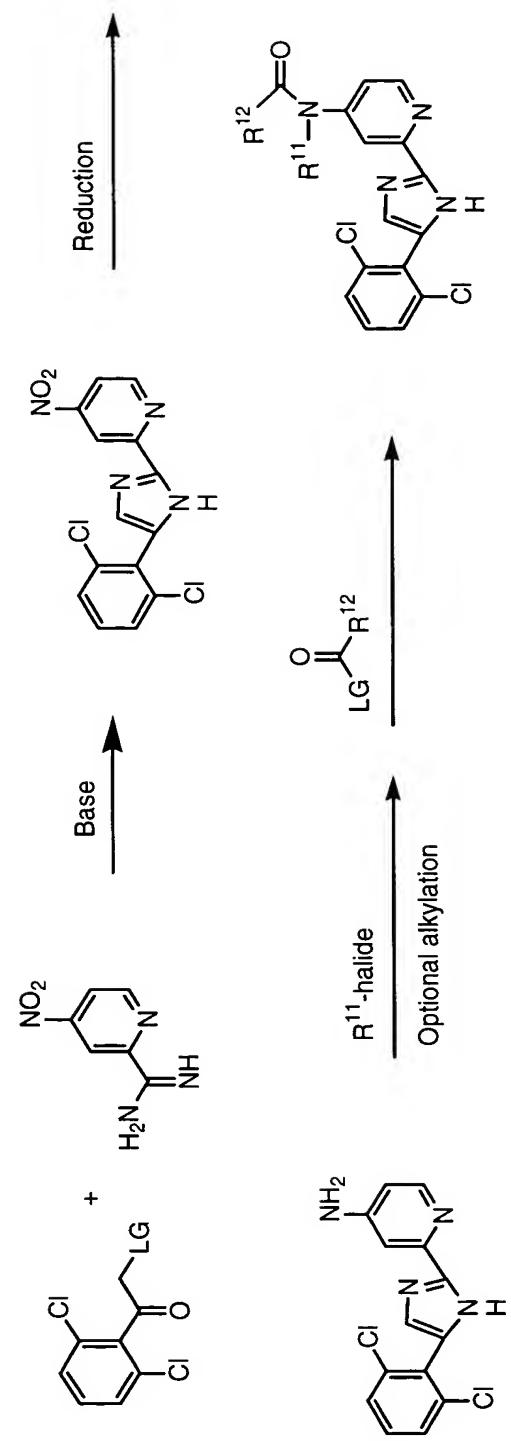


FIG. 10A

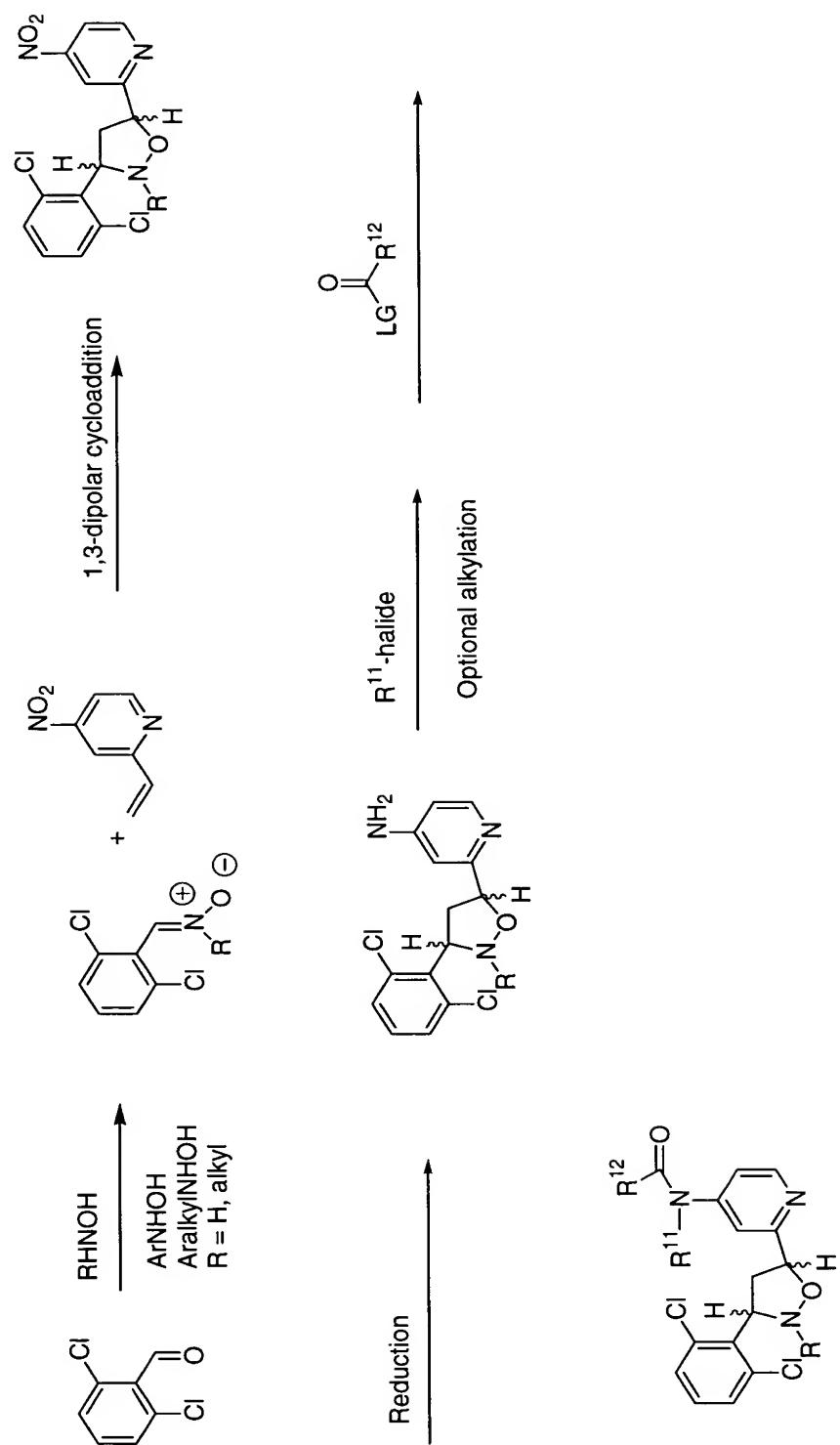


FIG. 10B

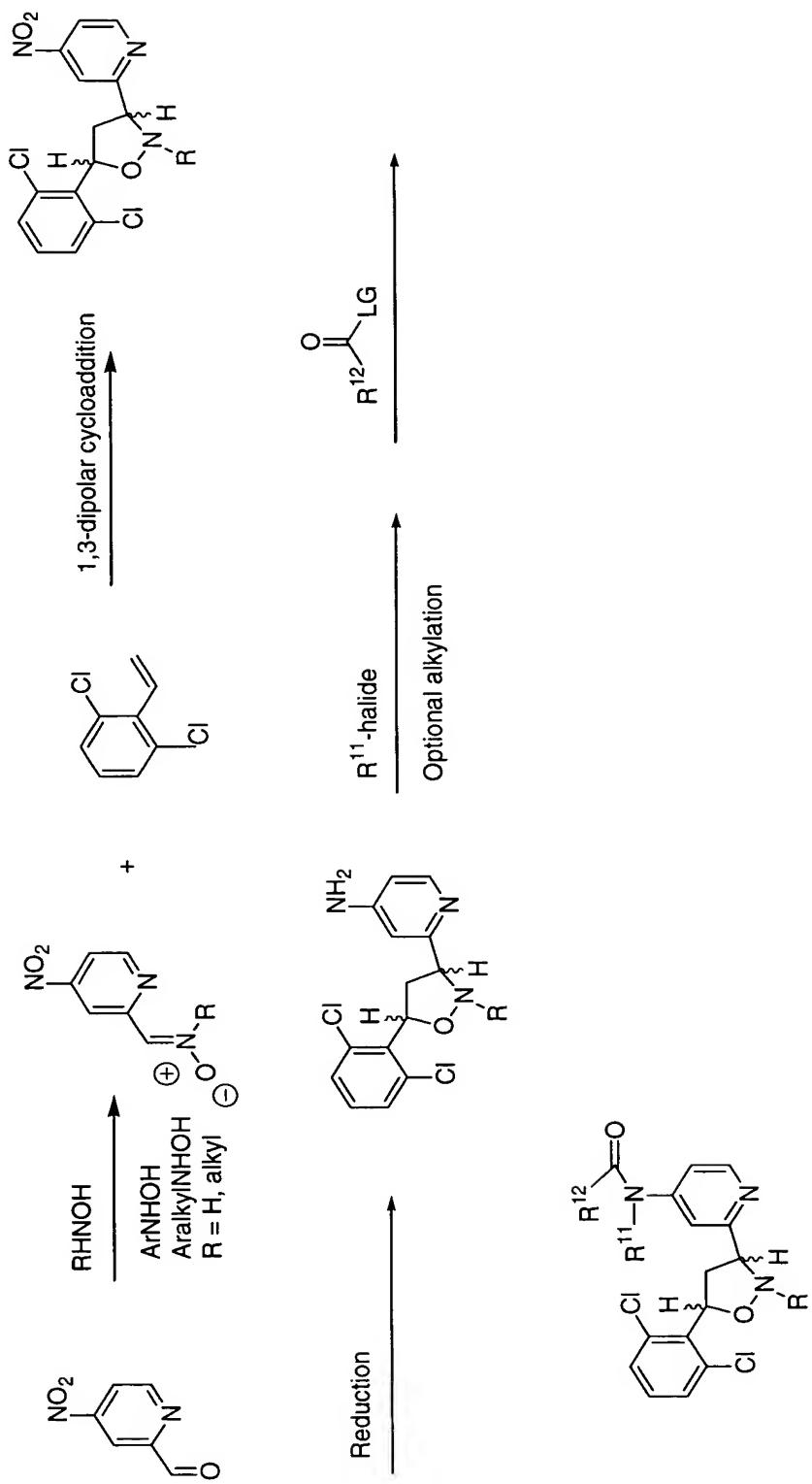


FIG. 11A

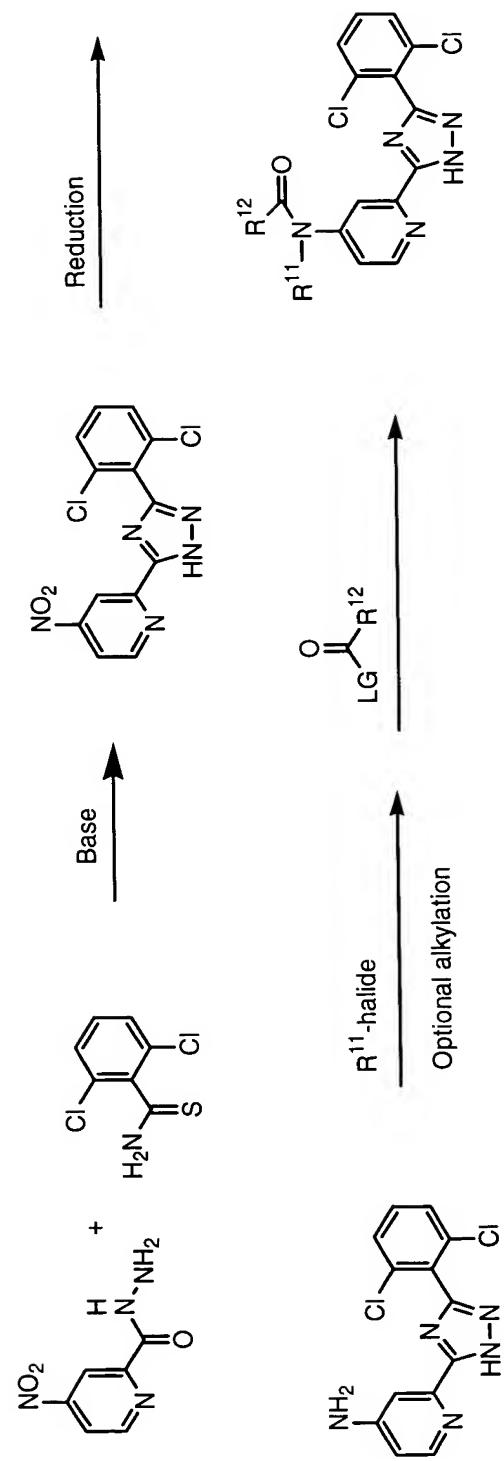


FIG. 11B

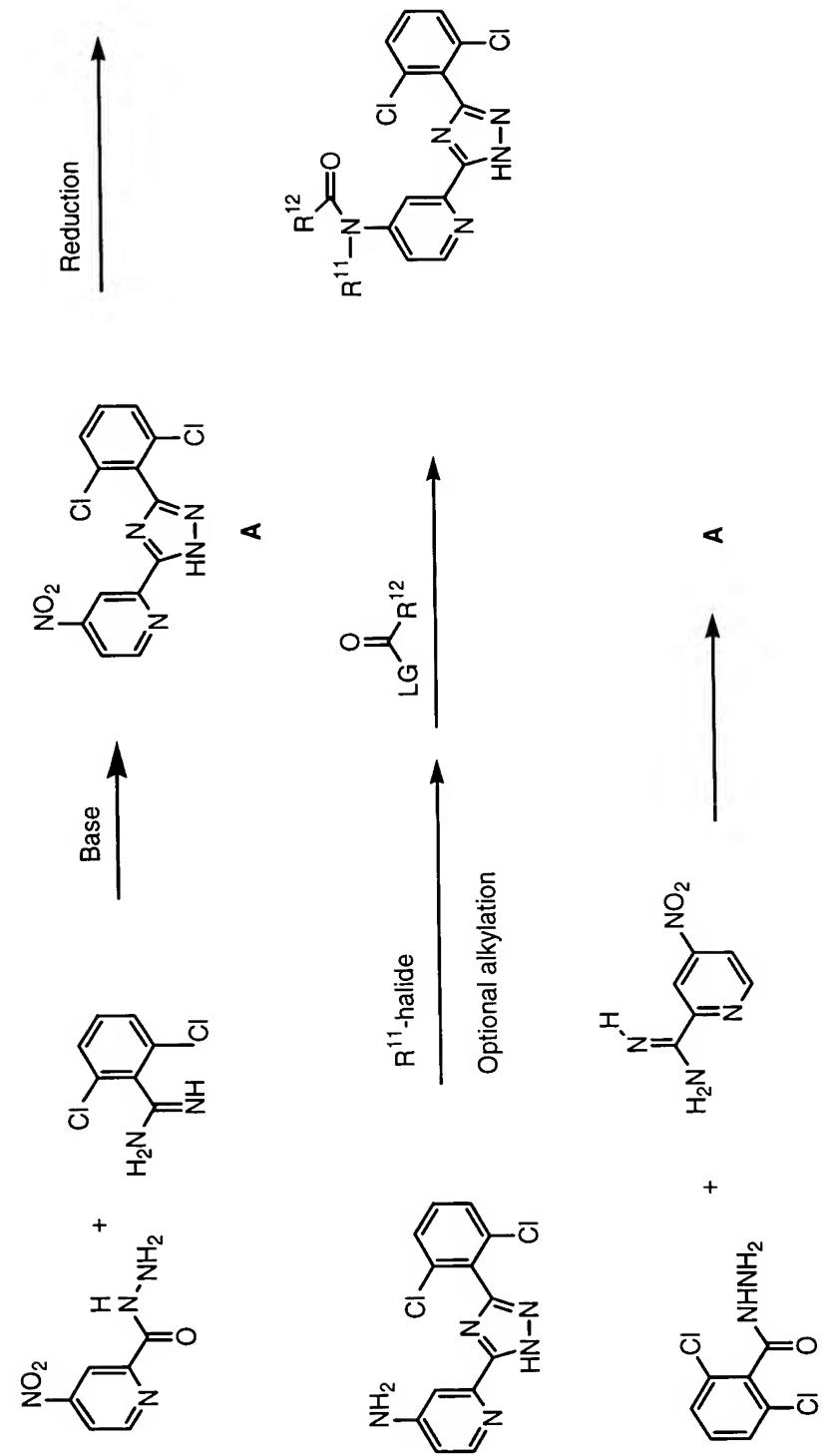


FIG. 12A

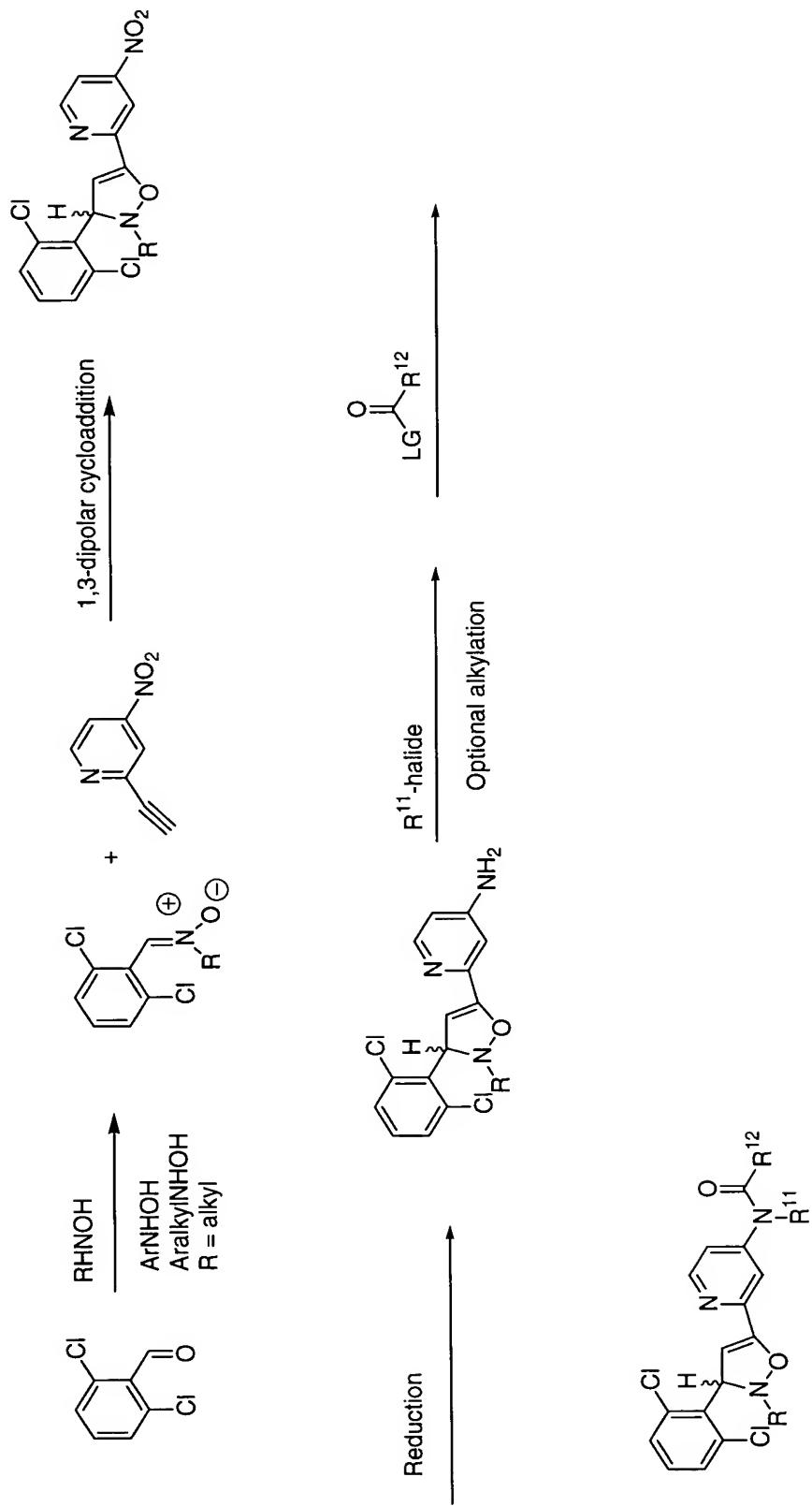


FIG. 12B

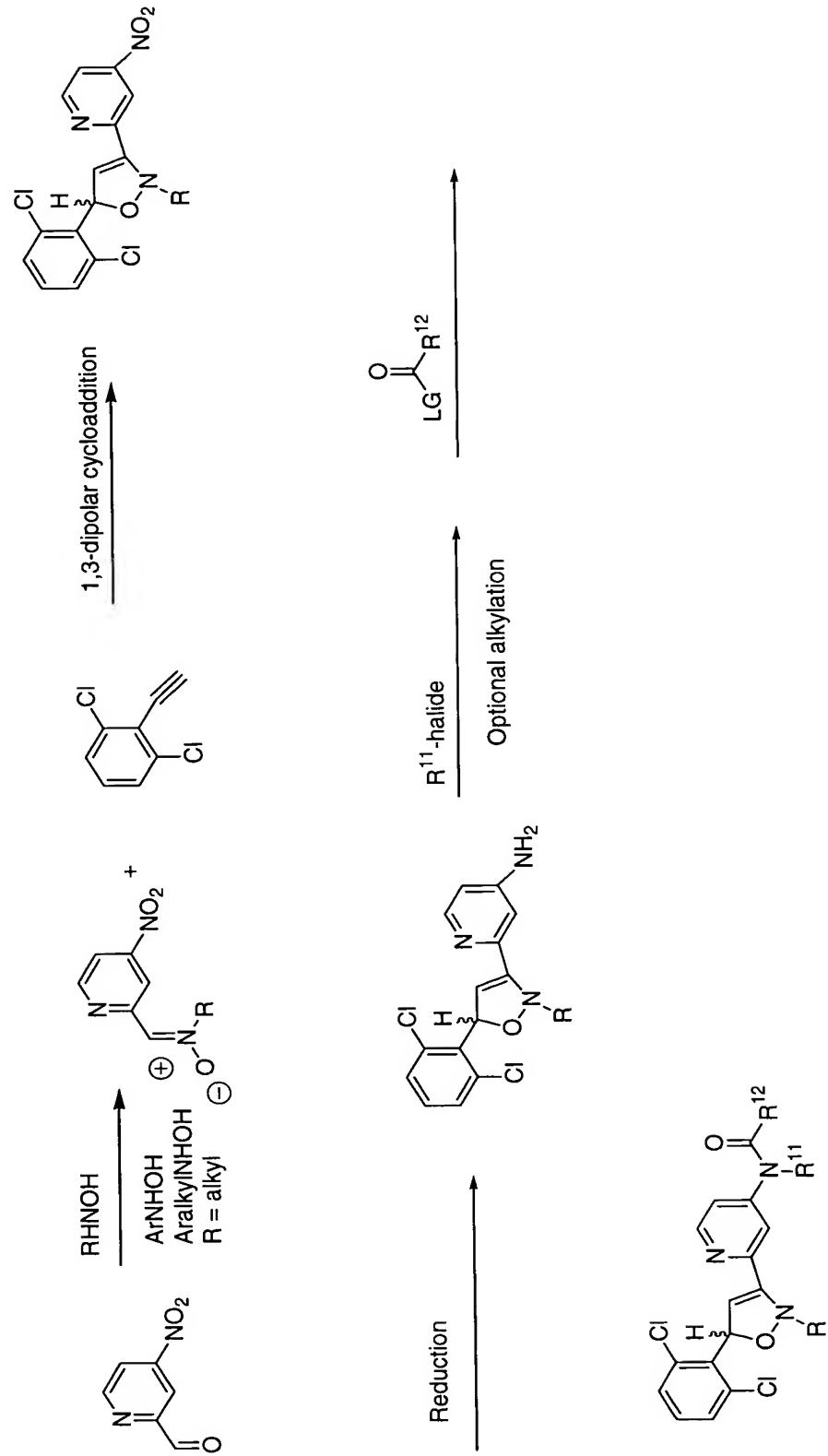


FIG. 12C

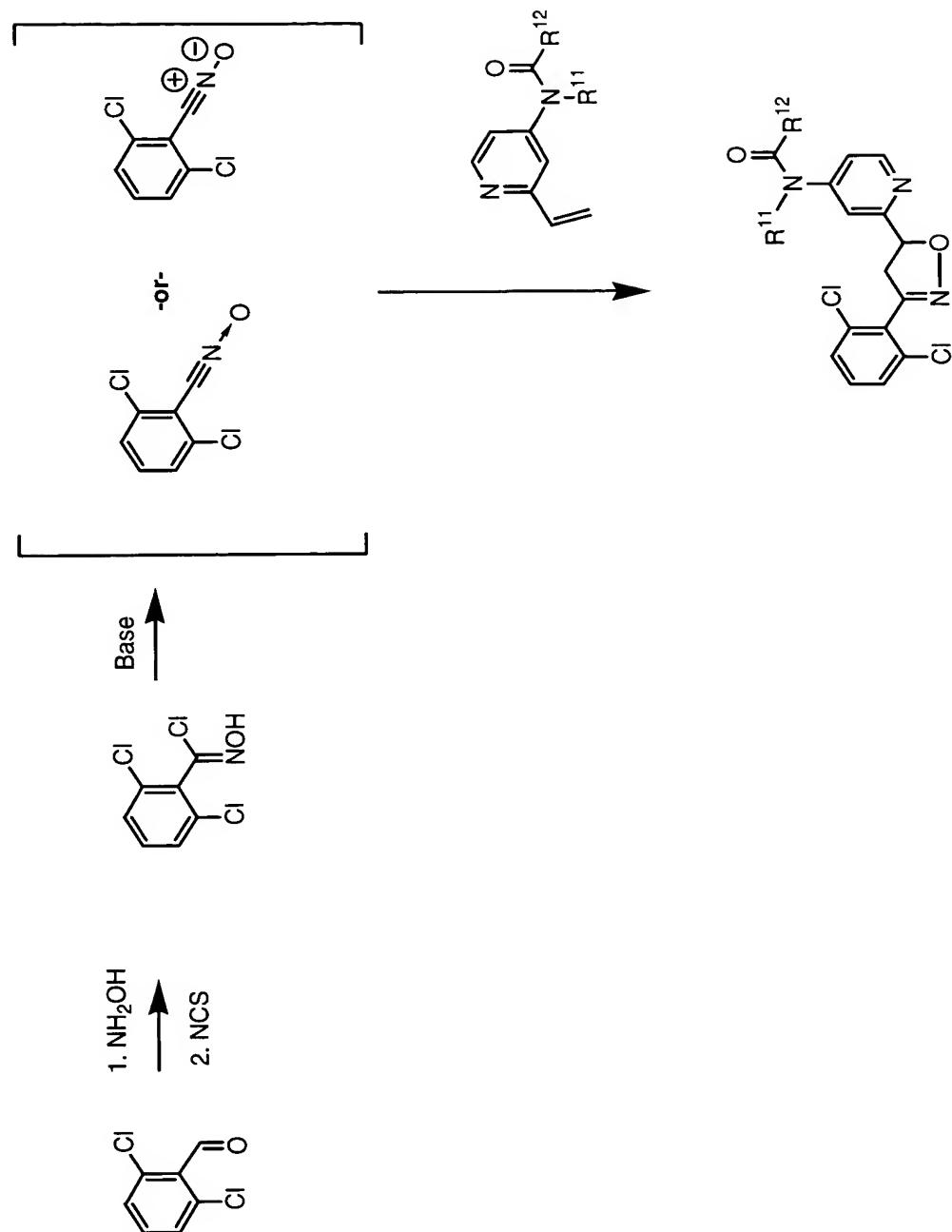


FIG. 12D

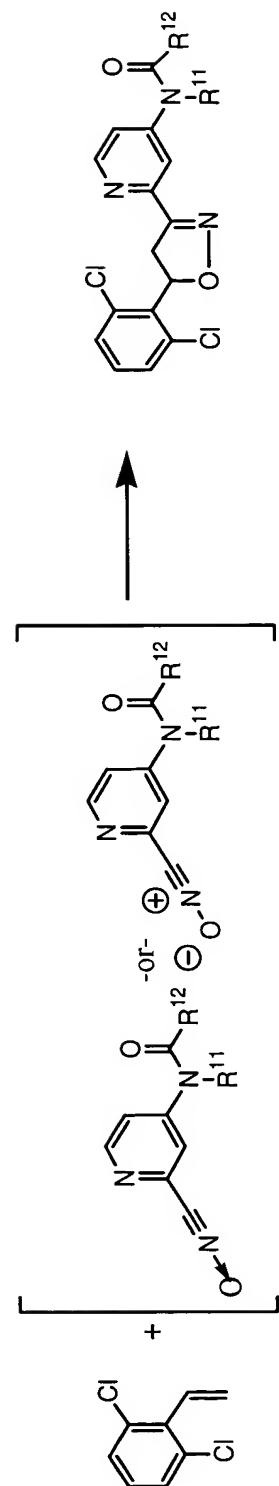


FIG. 12E

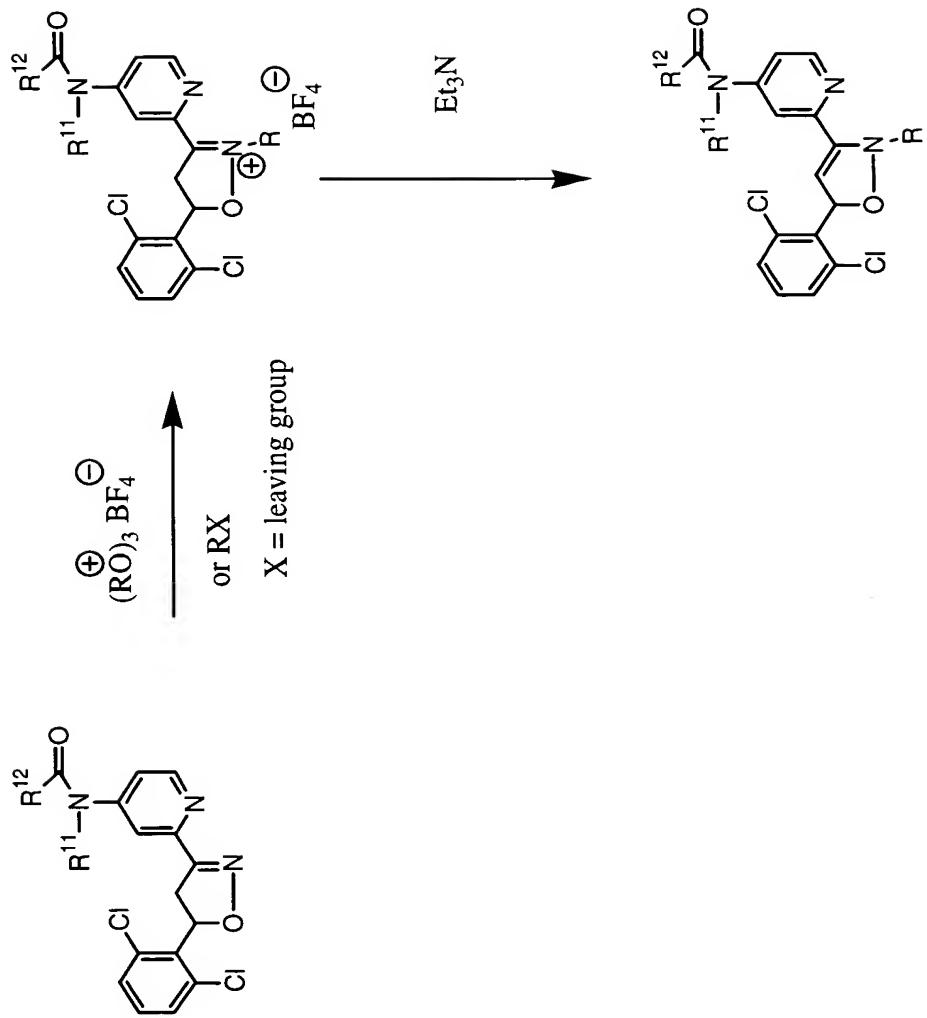


FIG. 13

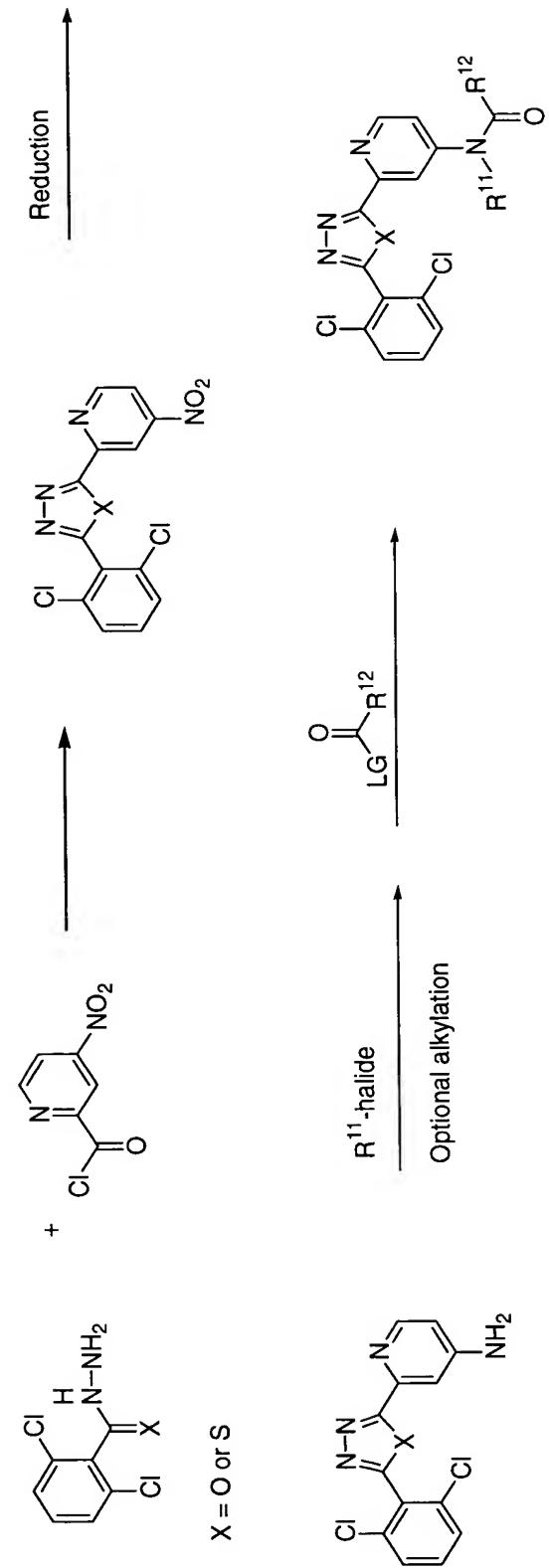


FIG. 14

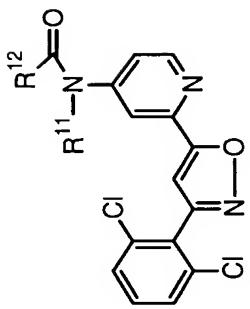
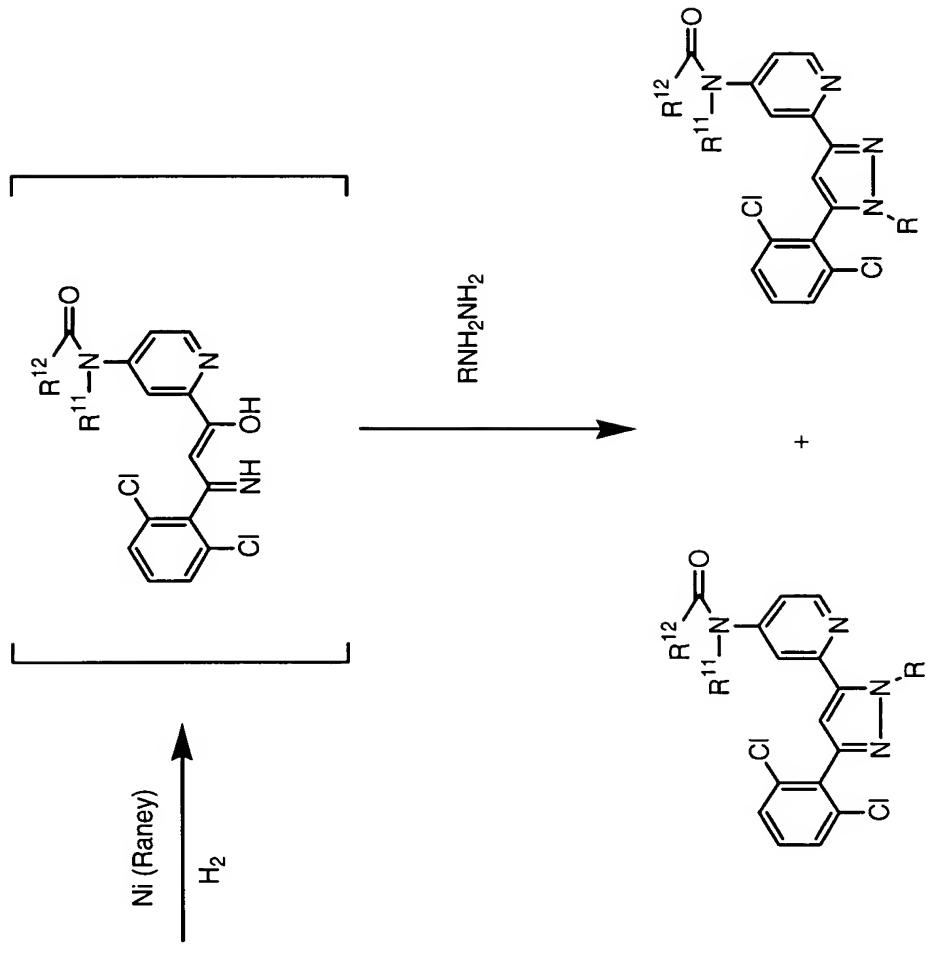


Figure 15

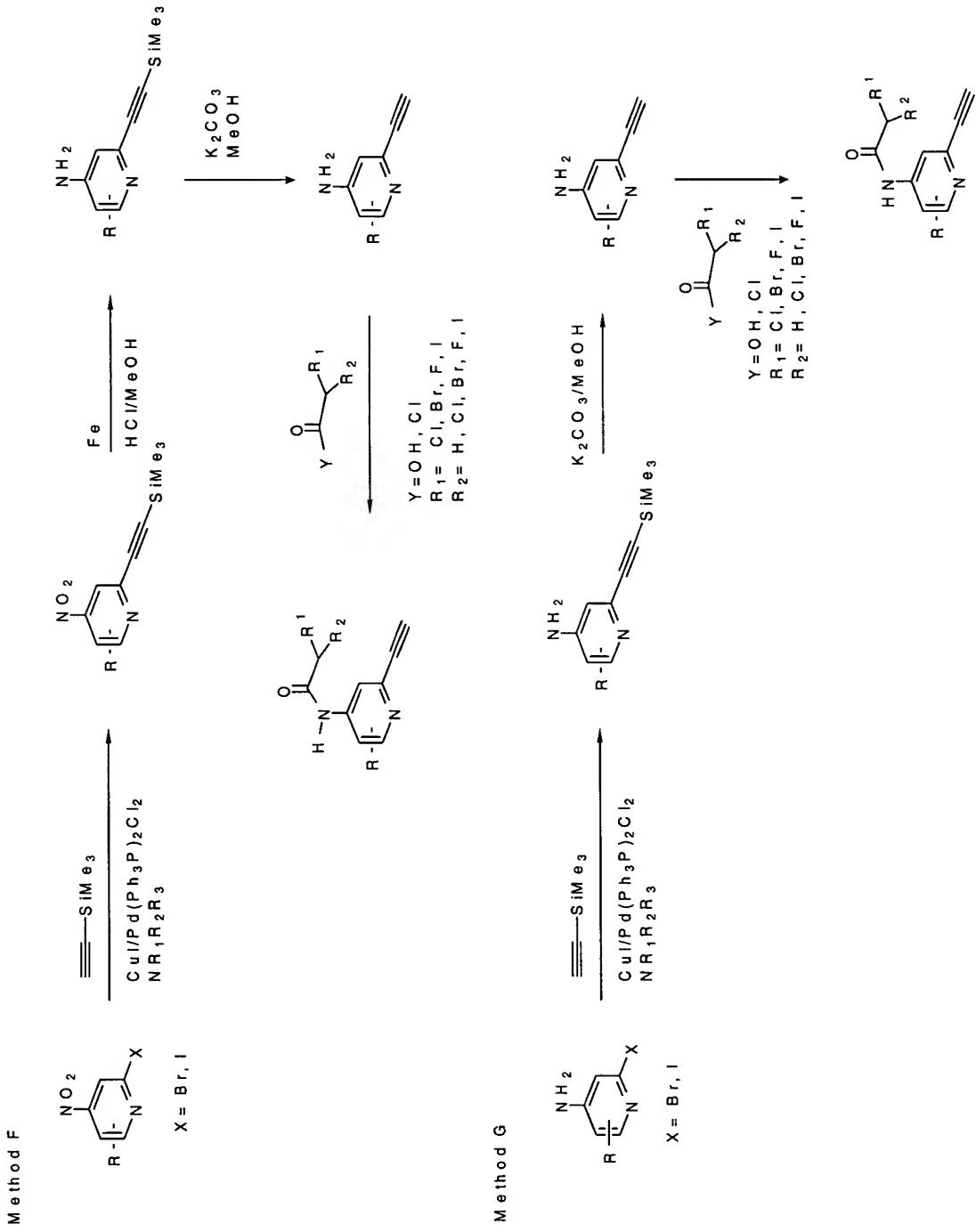
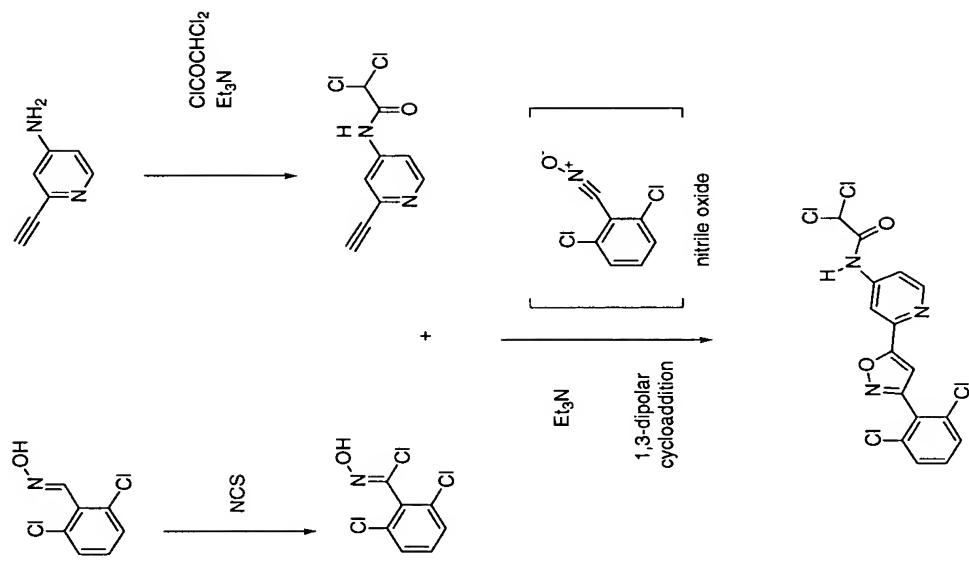


Figure 16  
Para C-ring phenyl isomer - isoxazole series



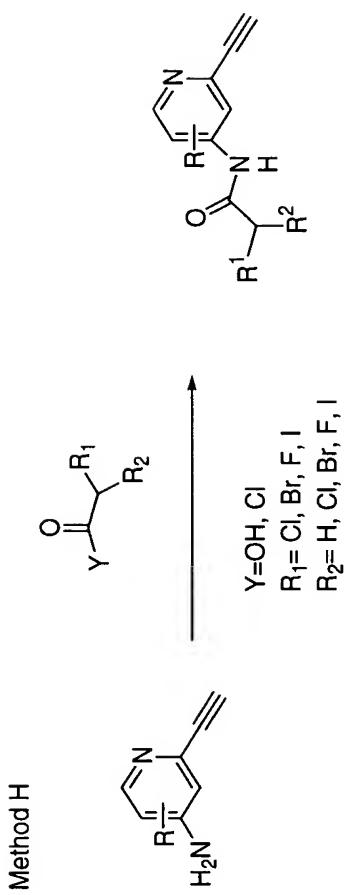


Figure 17

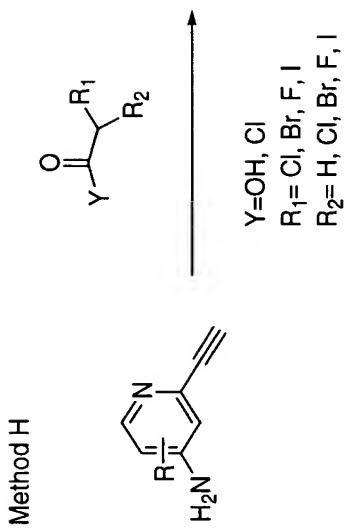


Figure 18  
Reverse meta-isoxazole

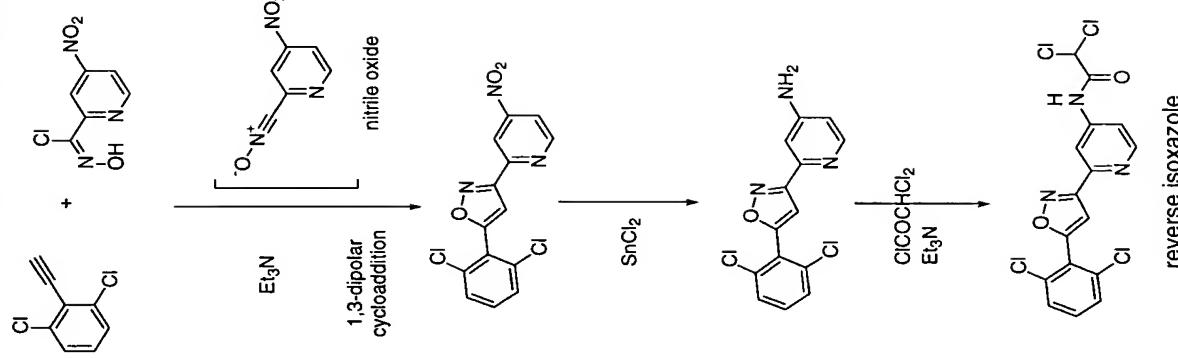


Figure 19  
Reverse 2-isoxazoline

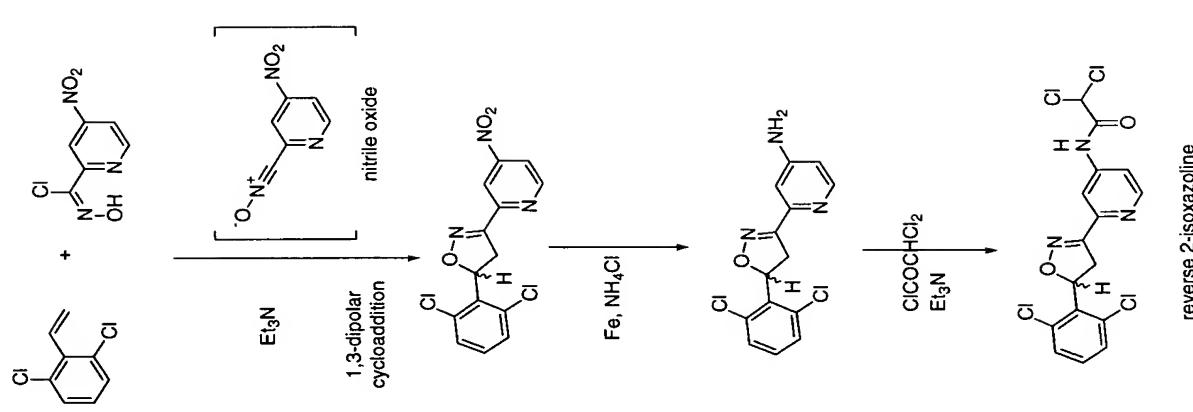


Figure 20  
2-isoxazoline

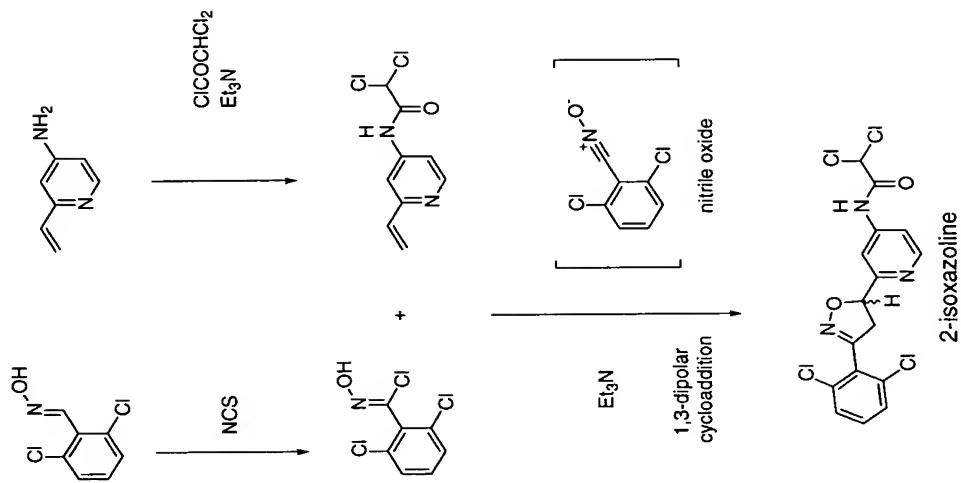


Figure 21  
4-isoxazoline

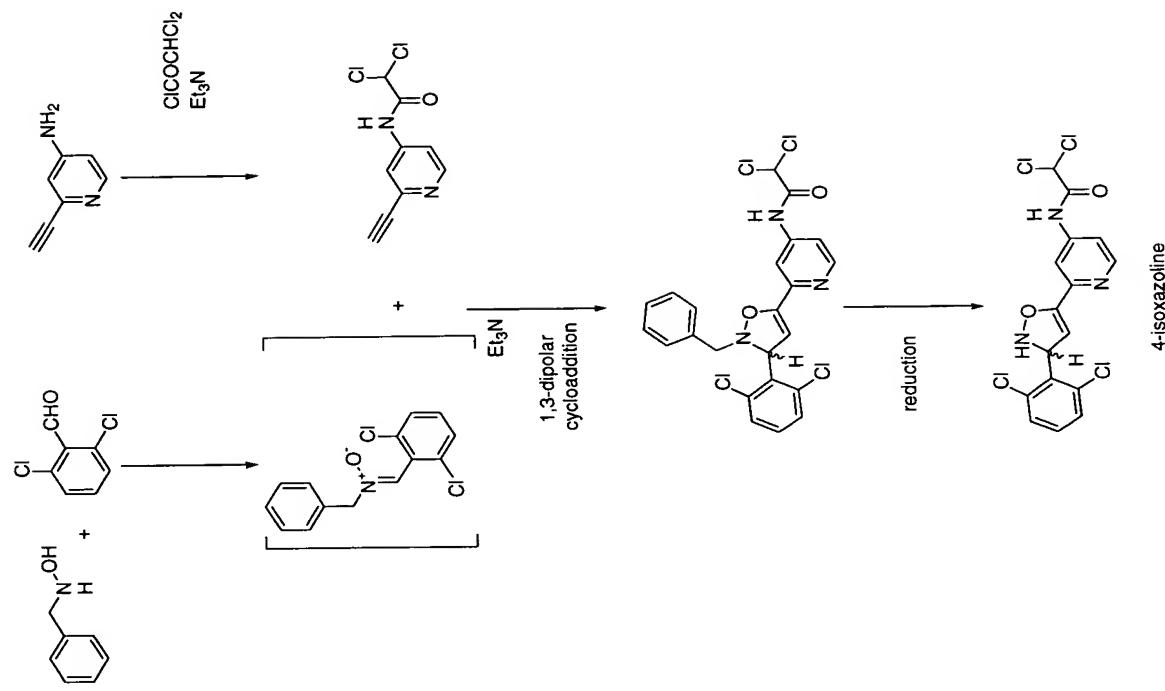


Figure 22  
Reverse 4-Isoxazoline

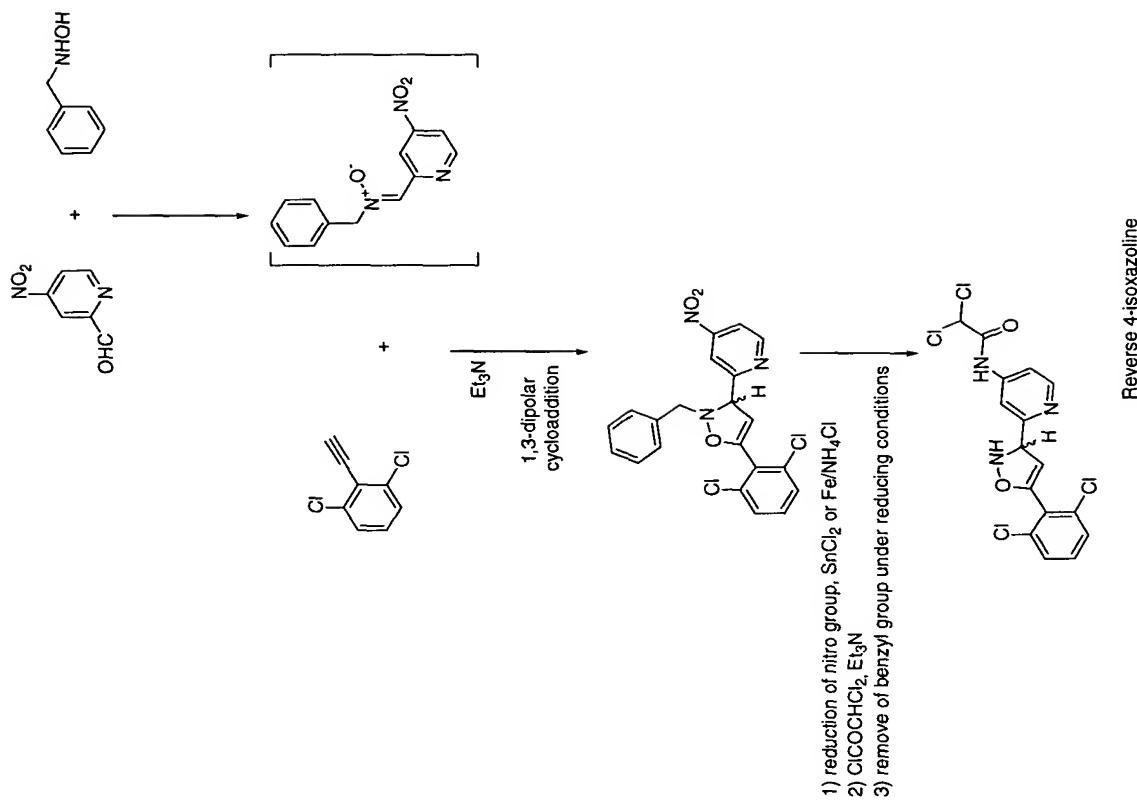


Figure 23

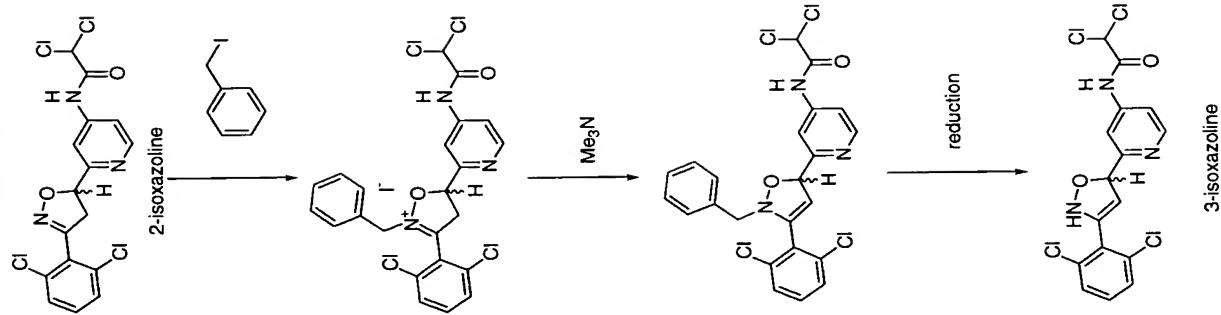


Figure 24  
Reverse 3-isoazoline

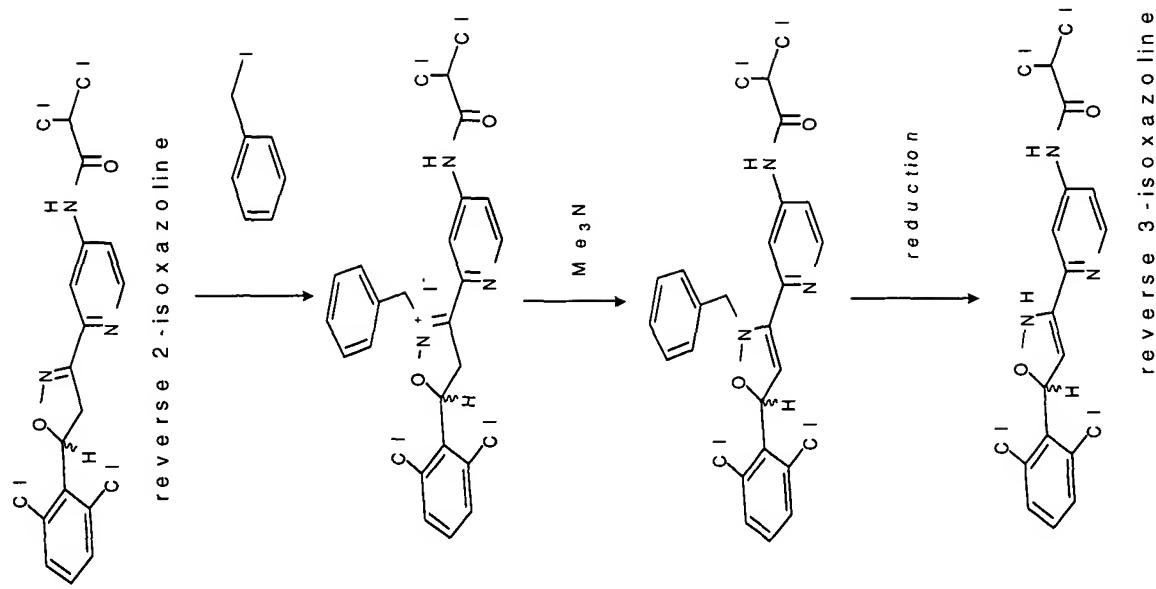


Figure 25  
Isoxazolidines

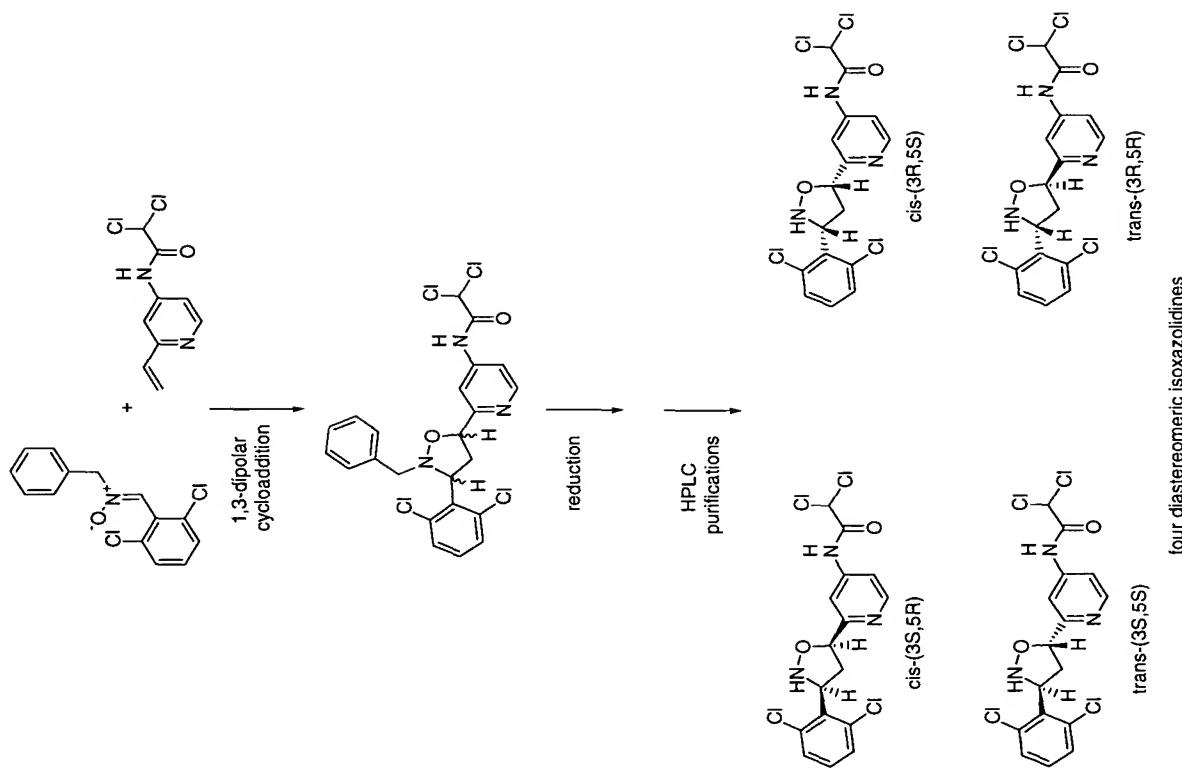
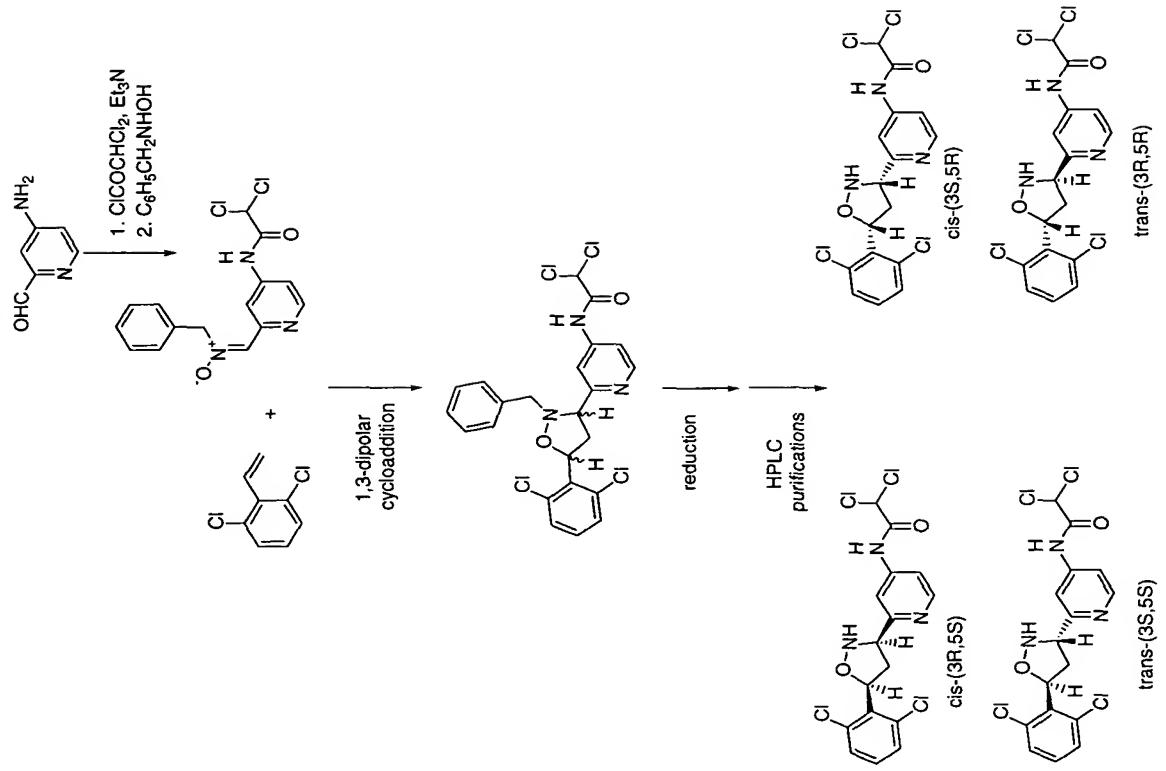
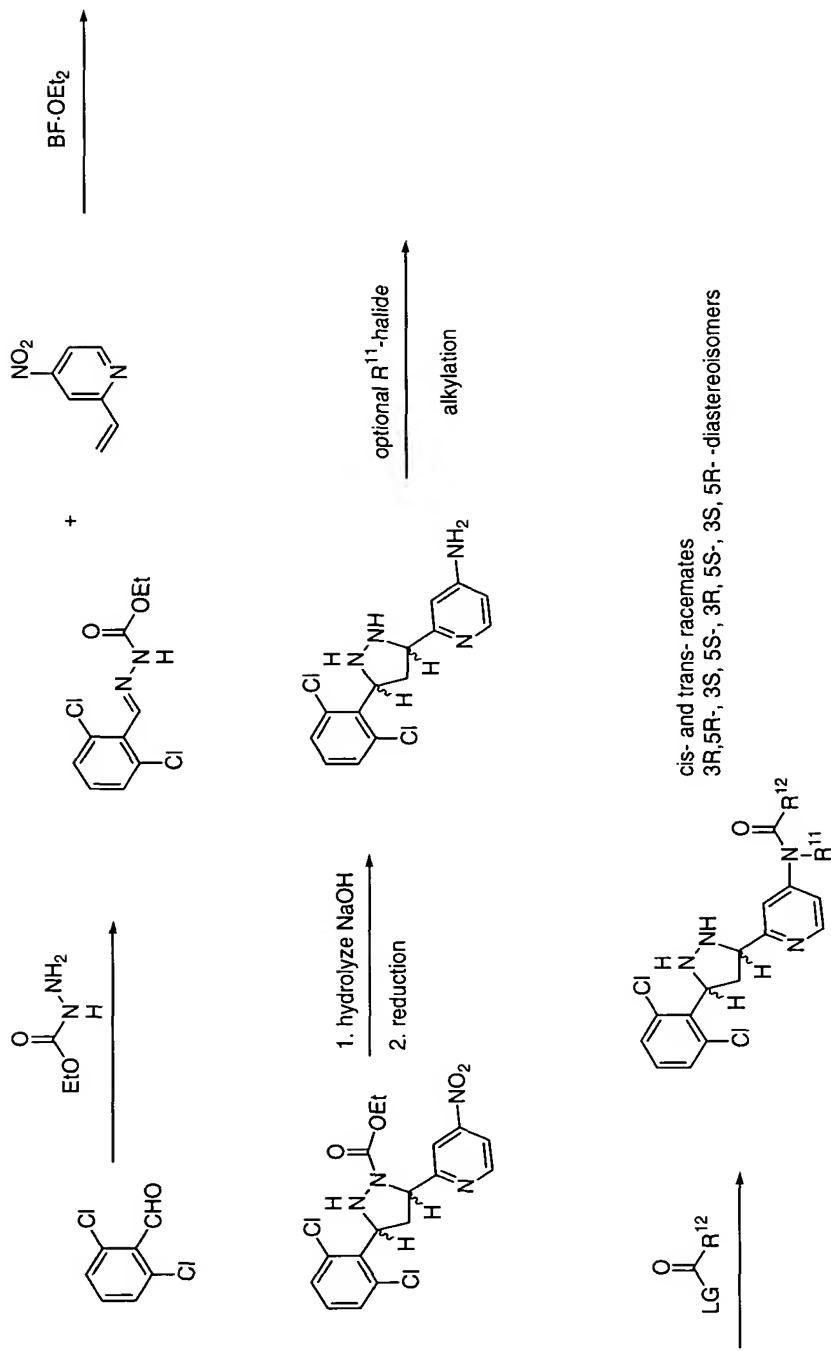


Figure 26  
Reverse isoxazolidines



four diastereomeric reverse isoxazolidines

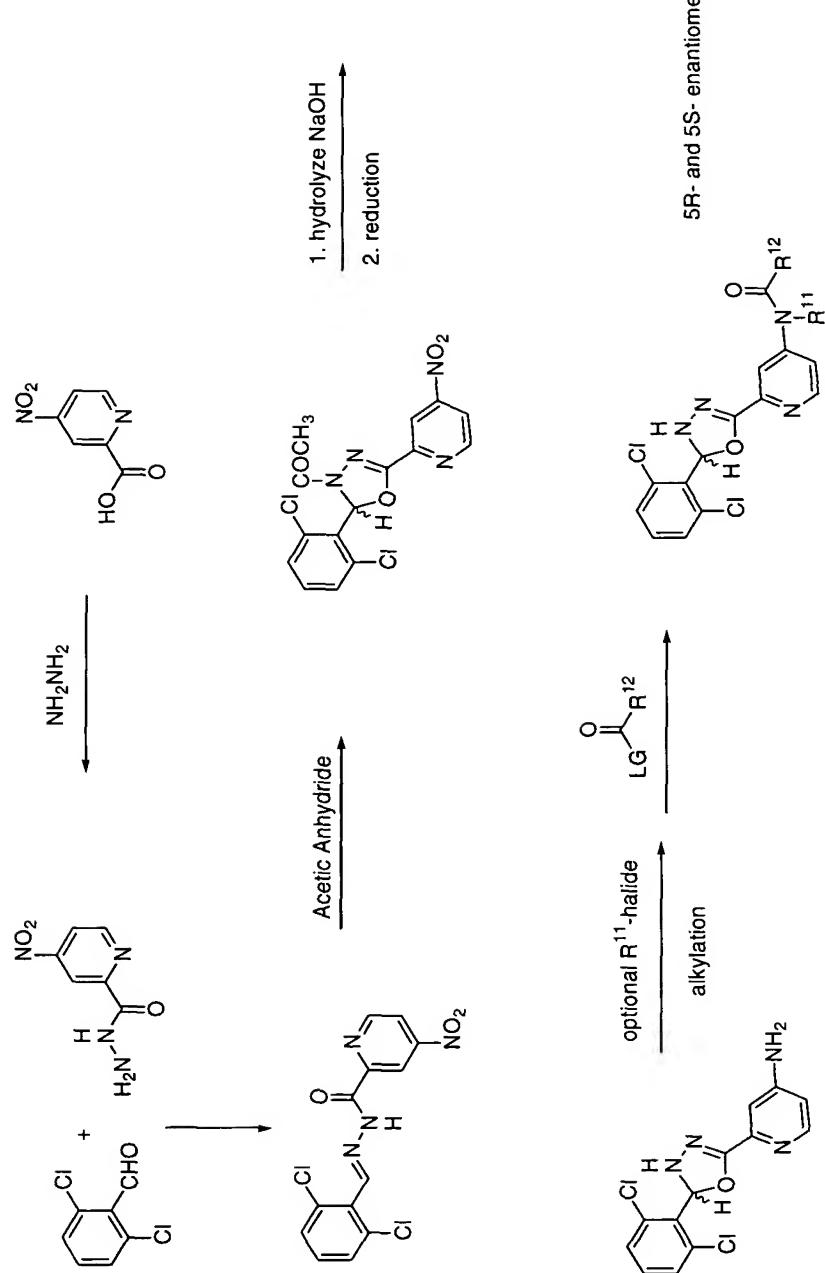
Figure 27  
1,2-pyrazolidines



### Representative Reference:

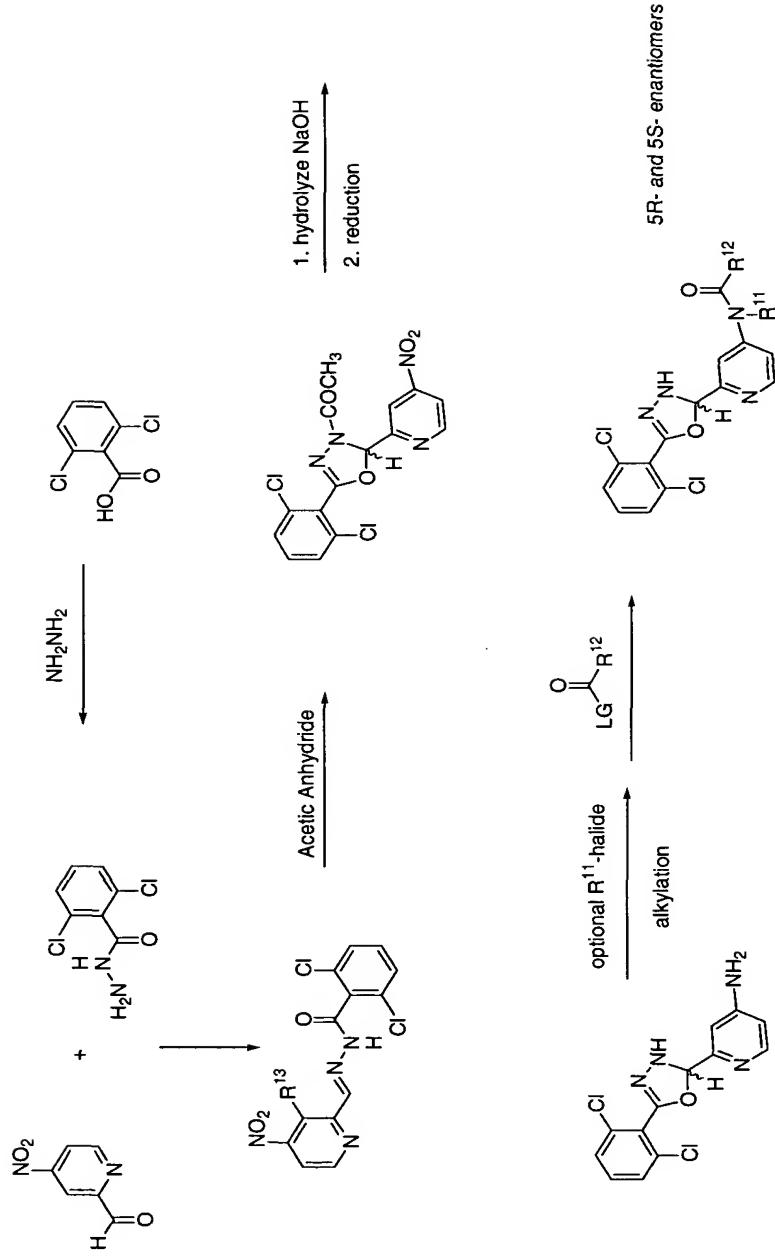
Bull. Chem. Soc. (Japan), 1989, 62, 3944-3949.

Figure 28  
4,5-dihydro-oxadiazoles



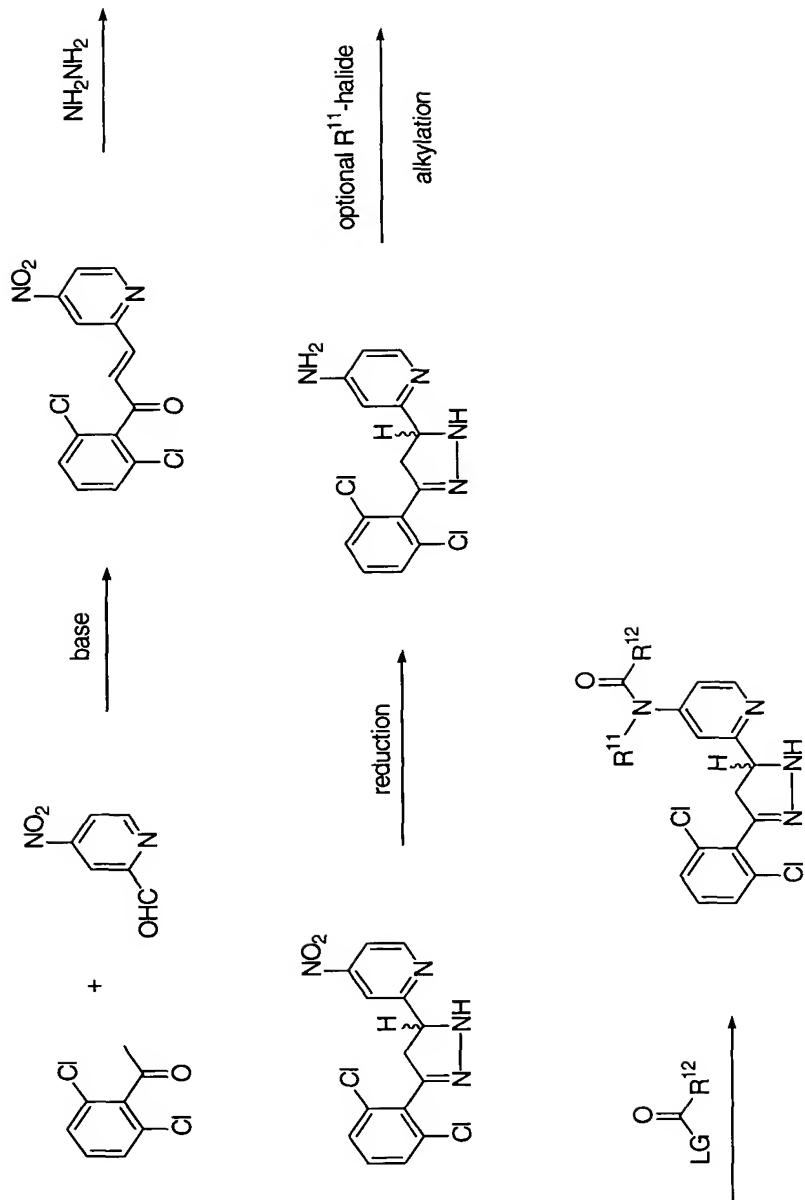
Representative Reference:  
J.Chem.Research, Synopses, 1995, 88-89.

Figure 29  
Reverse 4,5-dihydro-oxadiazoles



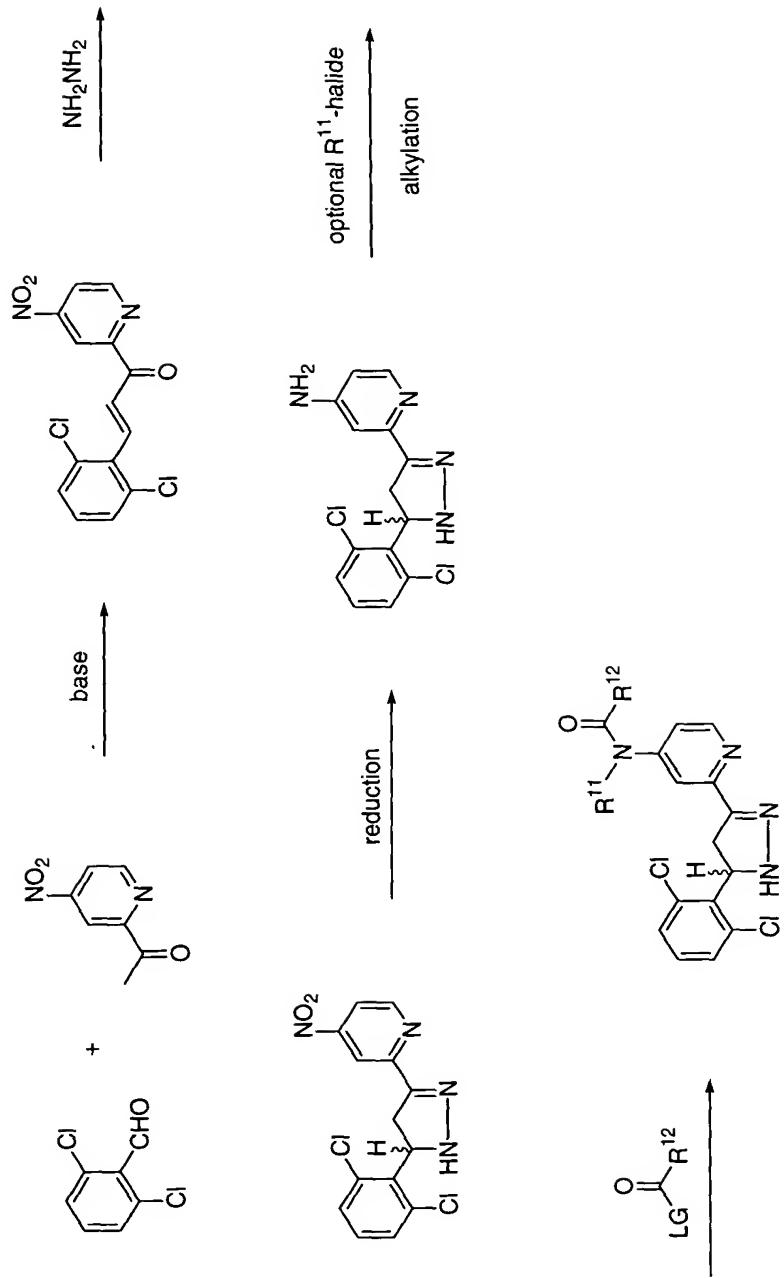
Representative Reference:  
J.Chem.Research, Synopses, 1995, 88-89.

Figure 30  
2-pyrazolines



Representative Reference:  
Oriental J. Chem. 2001;17, 513-514.

Figure 31  
reverse 2-pyrazolines

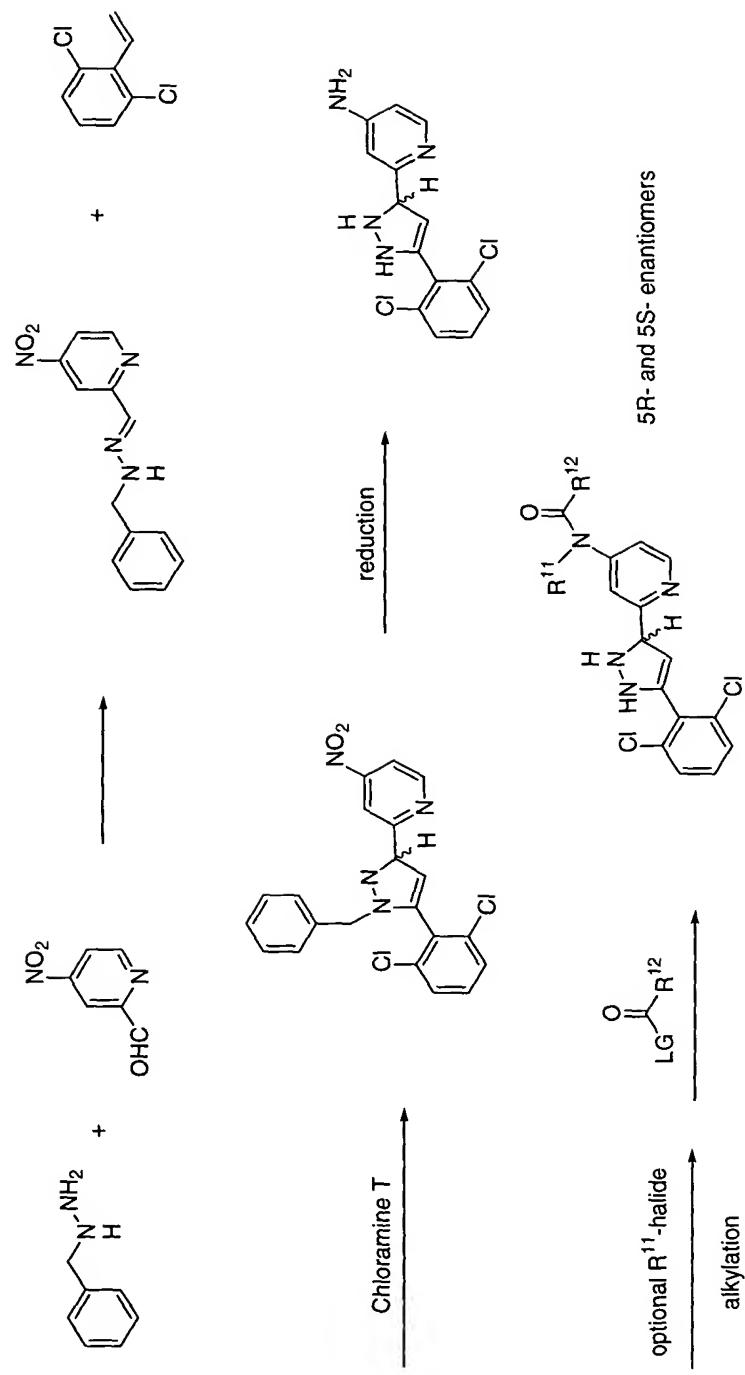


5R- and 5S- enantiomers

Representative Reference:

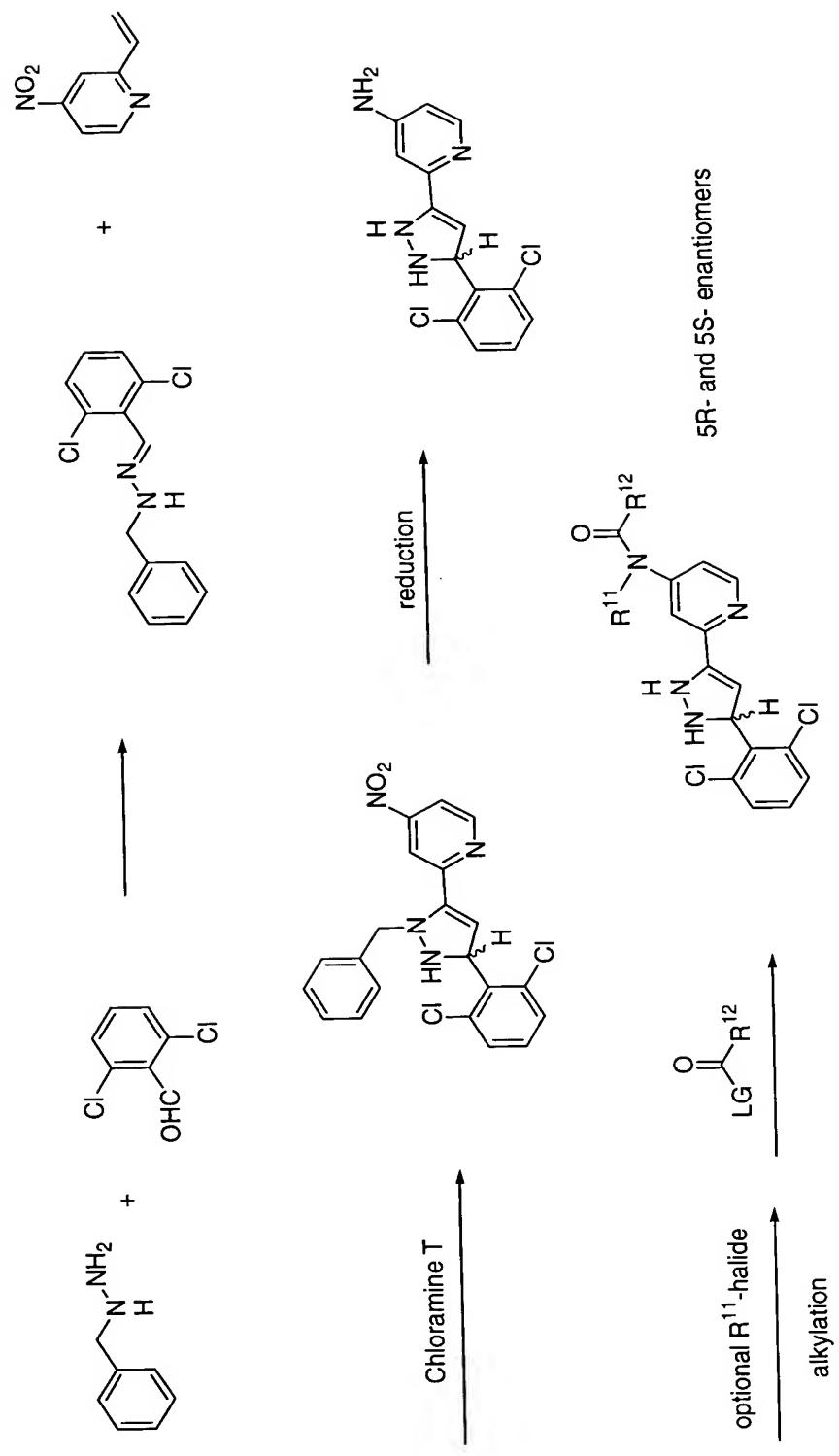
Oriental J. Chem. 2001, 17, 513-514.

Figure 32  
3-pyrazolines



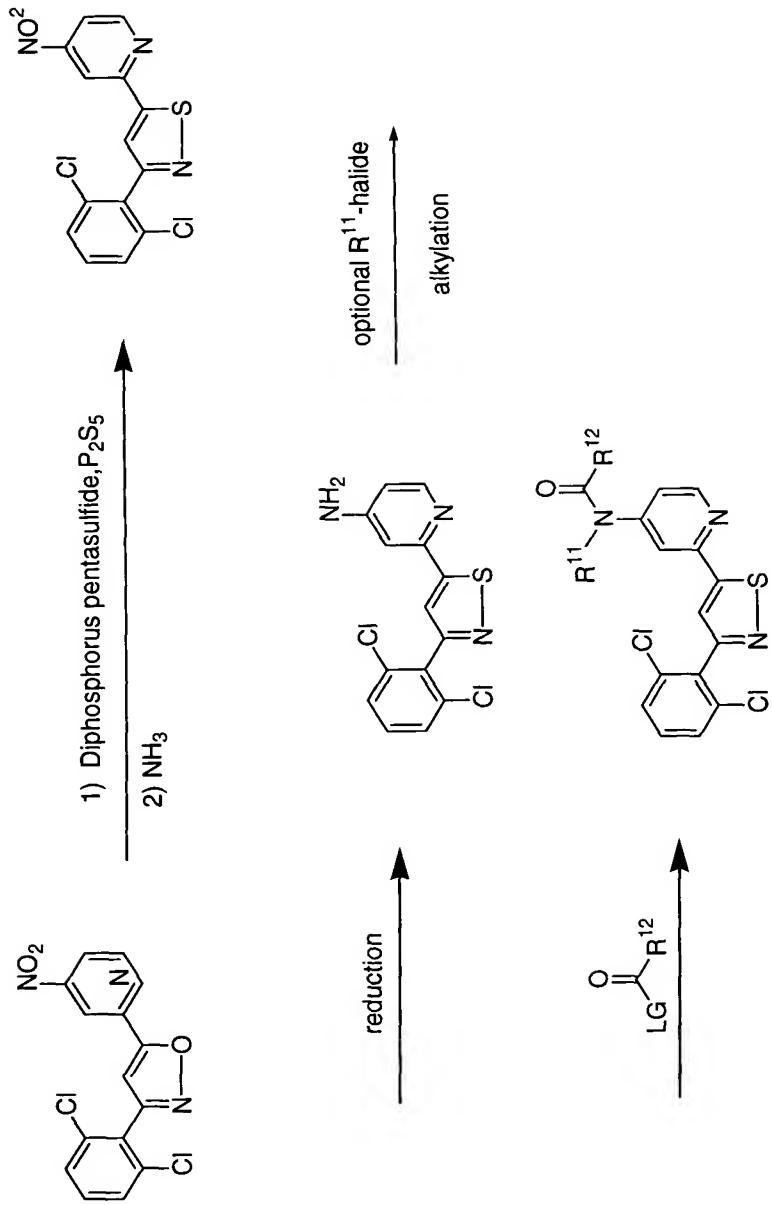
Representative Reference:  
Synth. Commun., 1989, 19, 2799-2807.

Figure 33  
Reverse 3-pyrazolines



Representative Reference:  
Synth. Commun., 1989, 19, 2799-2807.

Figure 34  
Isothiazole



Representative Reference:  
Tetrahedron, 1992, 48, 8127-8142.

Figure 35  
Reverse Isothiazole

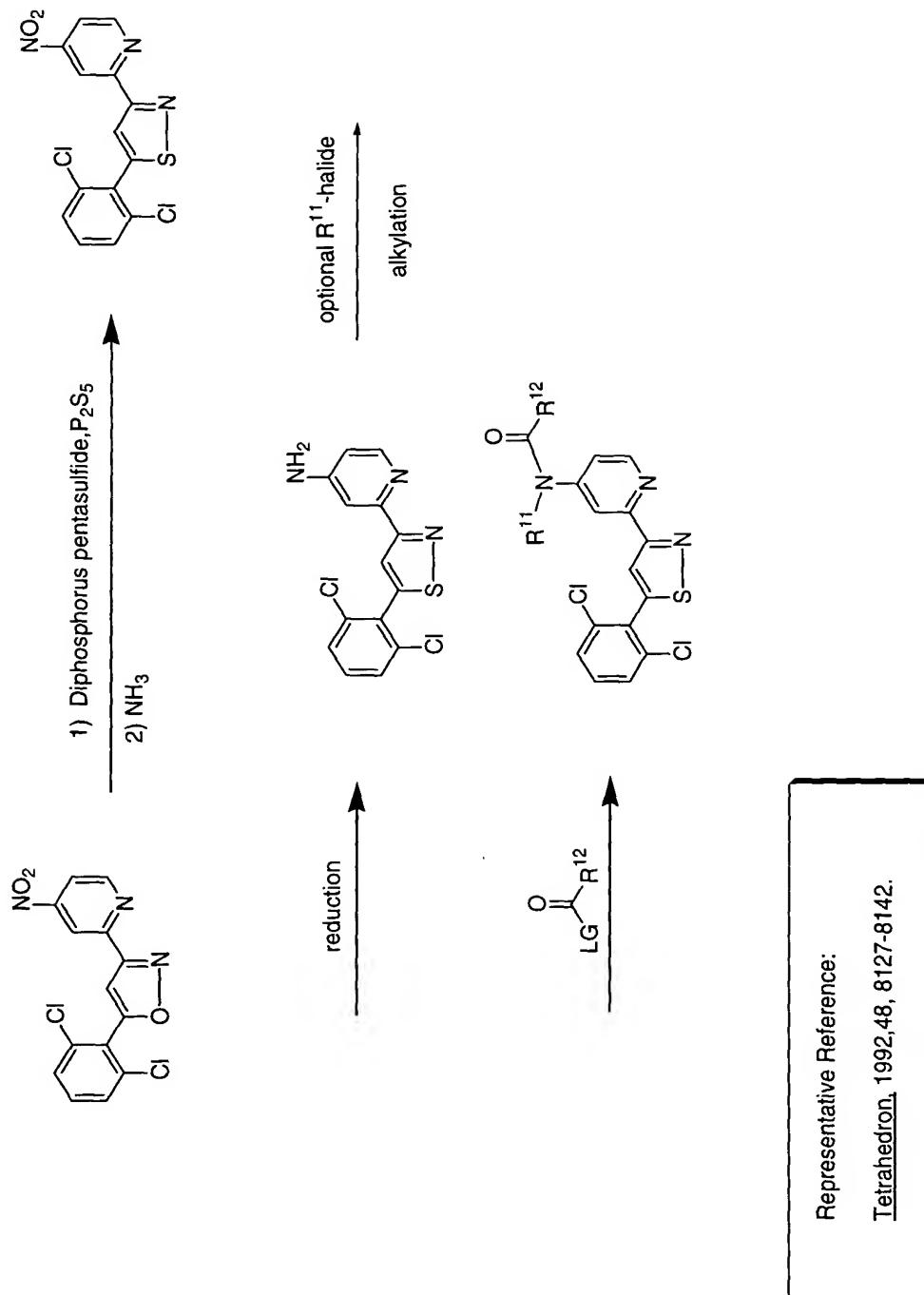


Figure 36  
2-Isothiazoline

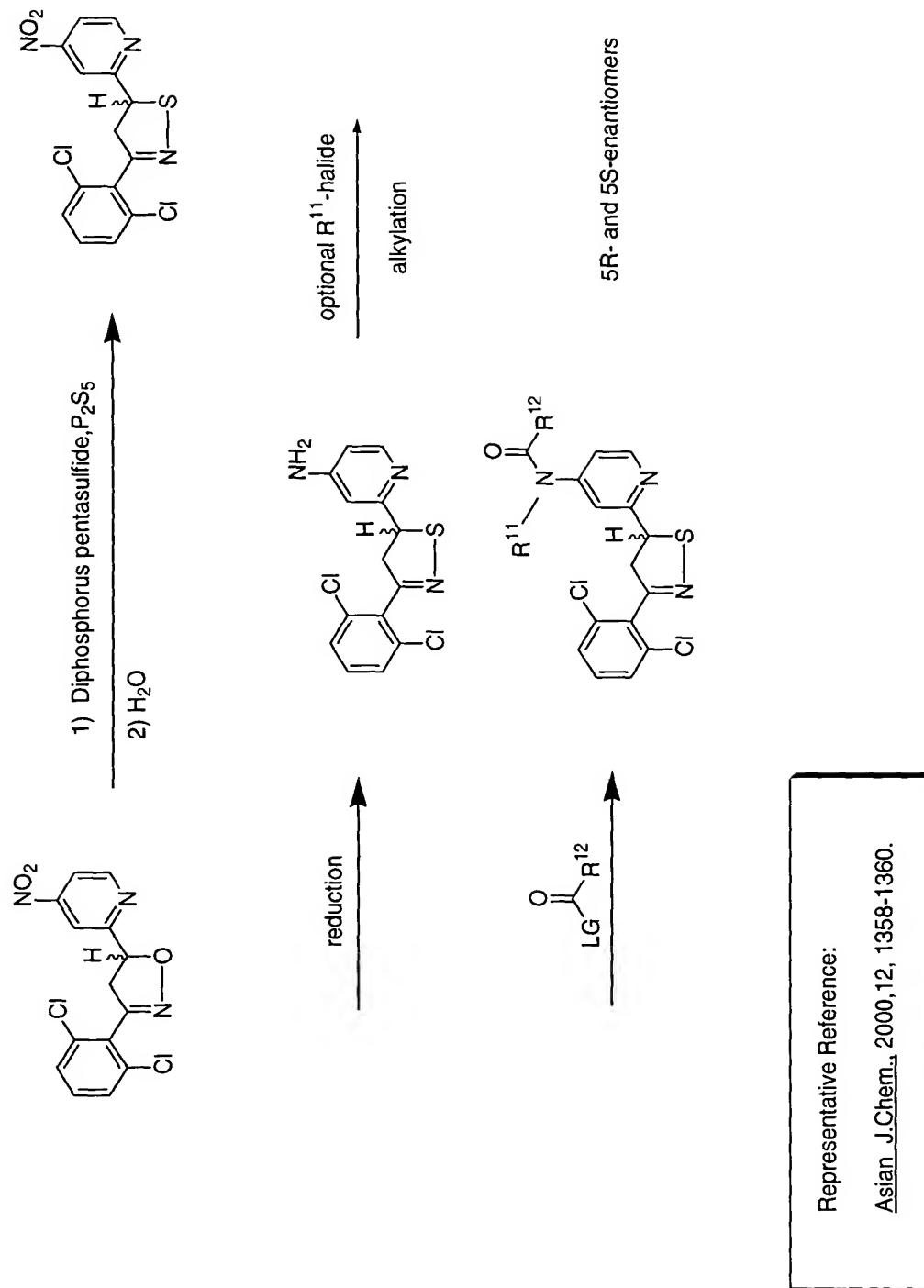


Figure 37  
Reverse 2-Isothiazoline

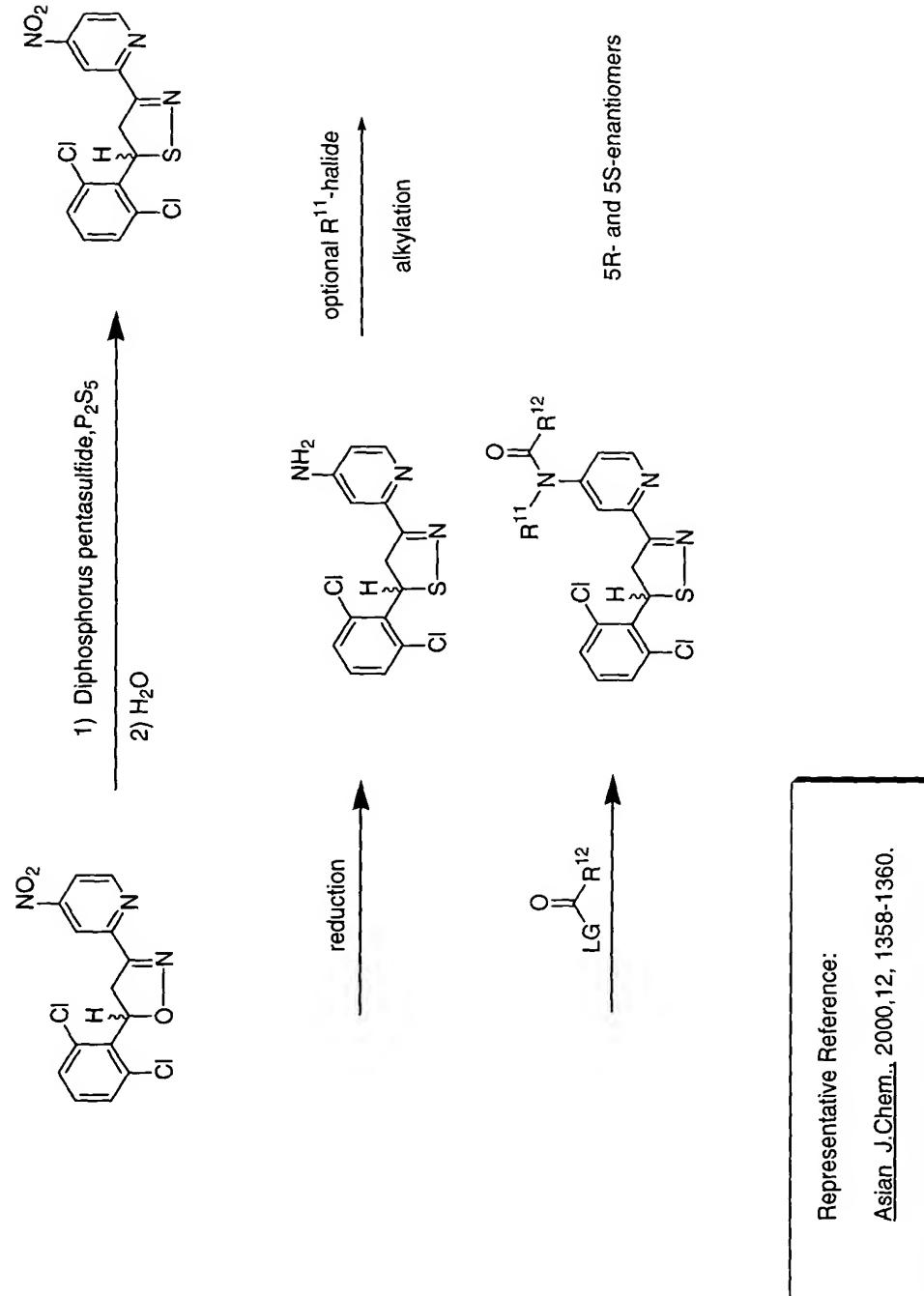
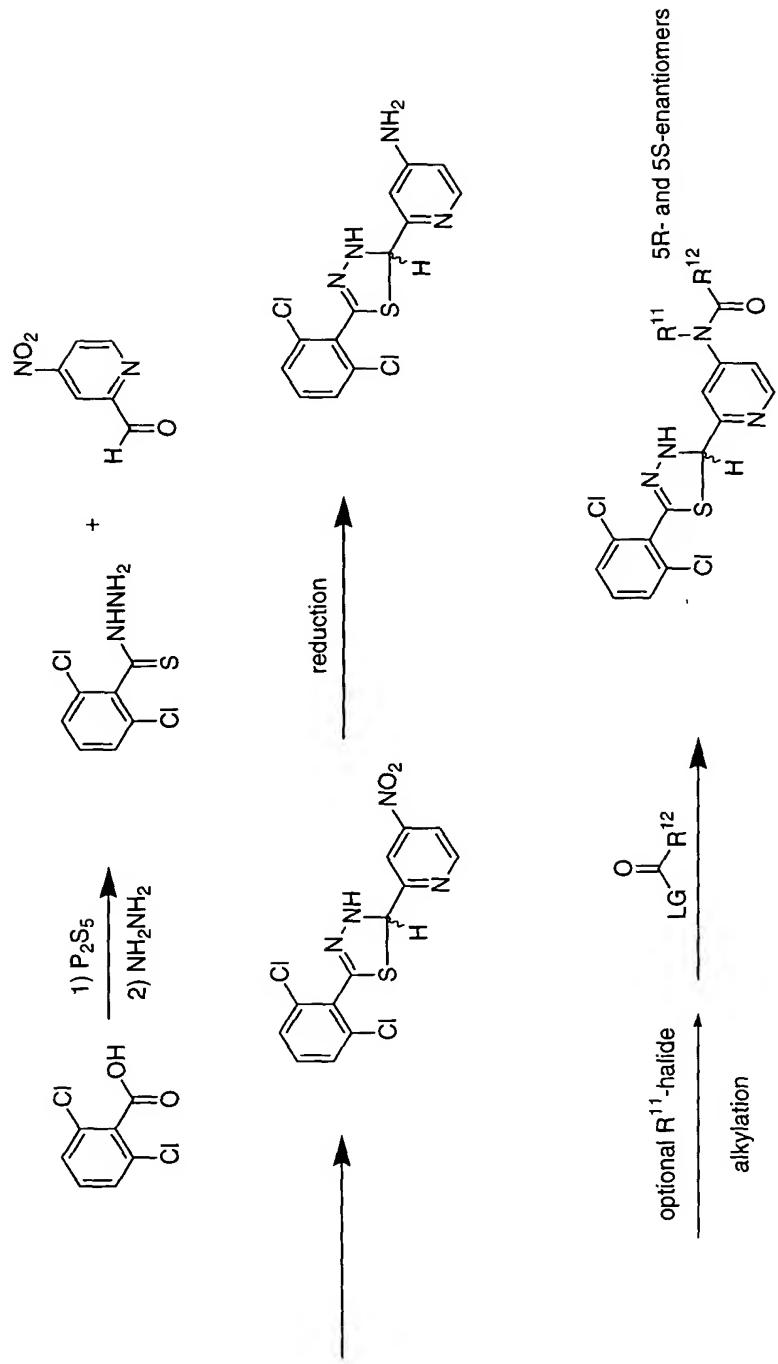
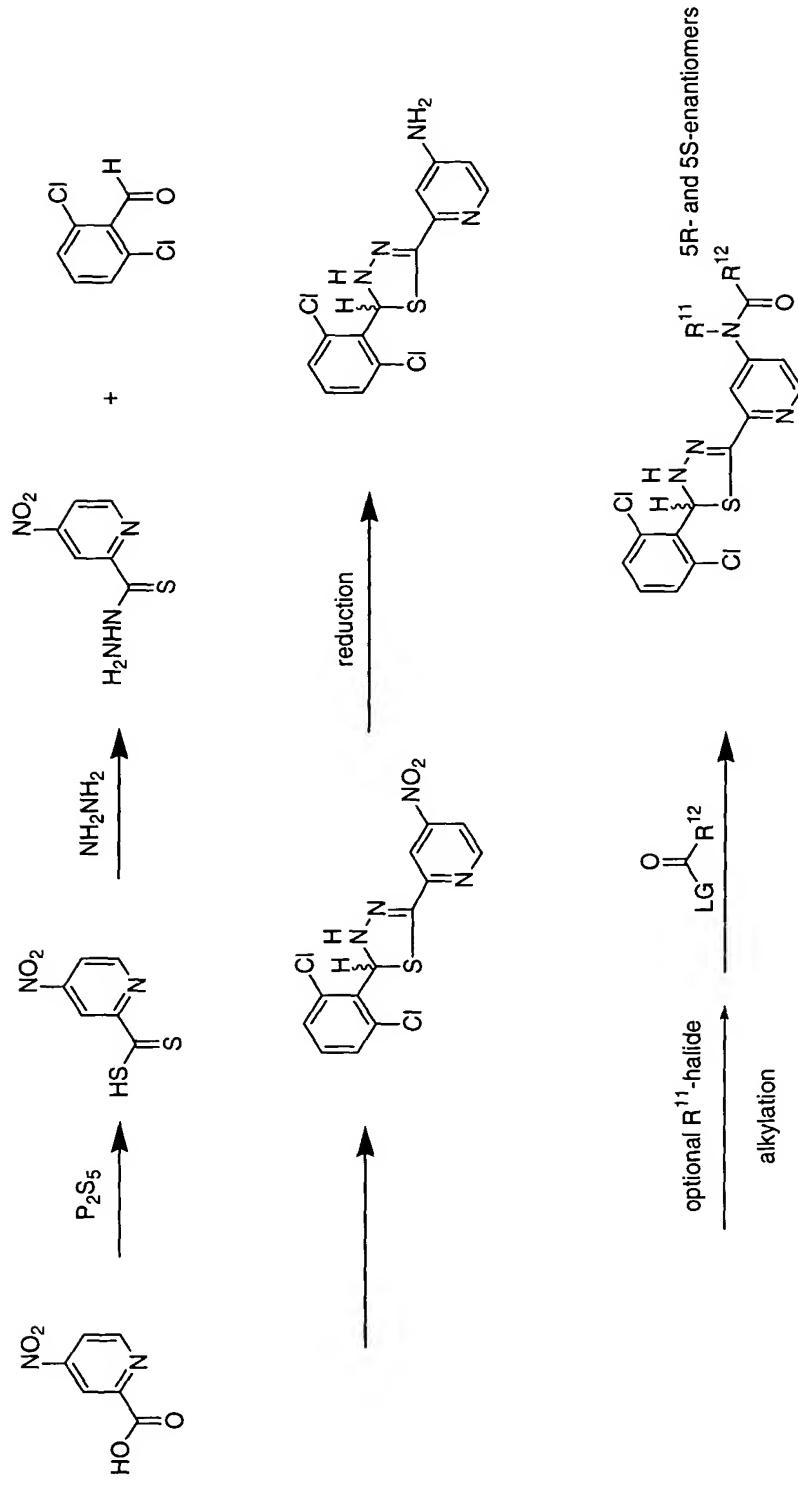


Figure 38  
4,5-Dihydro-1,3,4-thiadiazole



Representative Reference:  
Sovrem. Aspektv Terapii  
Prakt. Farmatsii, L., 1988, 90-96.

Figure 39  
Reverse 4,5-Dihydro-1,3,4-thiadiazole



Representative Reference:  
Sovrem. Aspektov Terapii i  
Prakt. Farmatsii, L., 1988, 90-96.

Figure 40  
2-Thiazoline

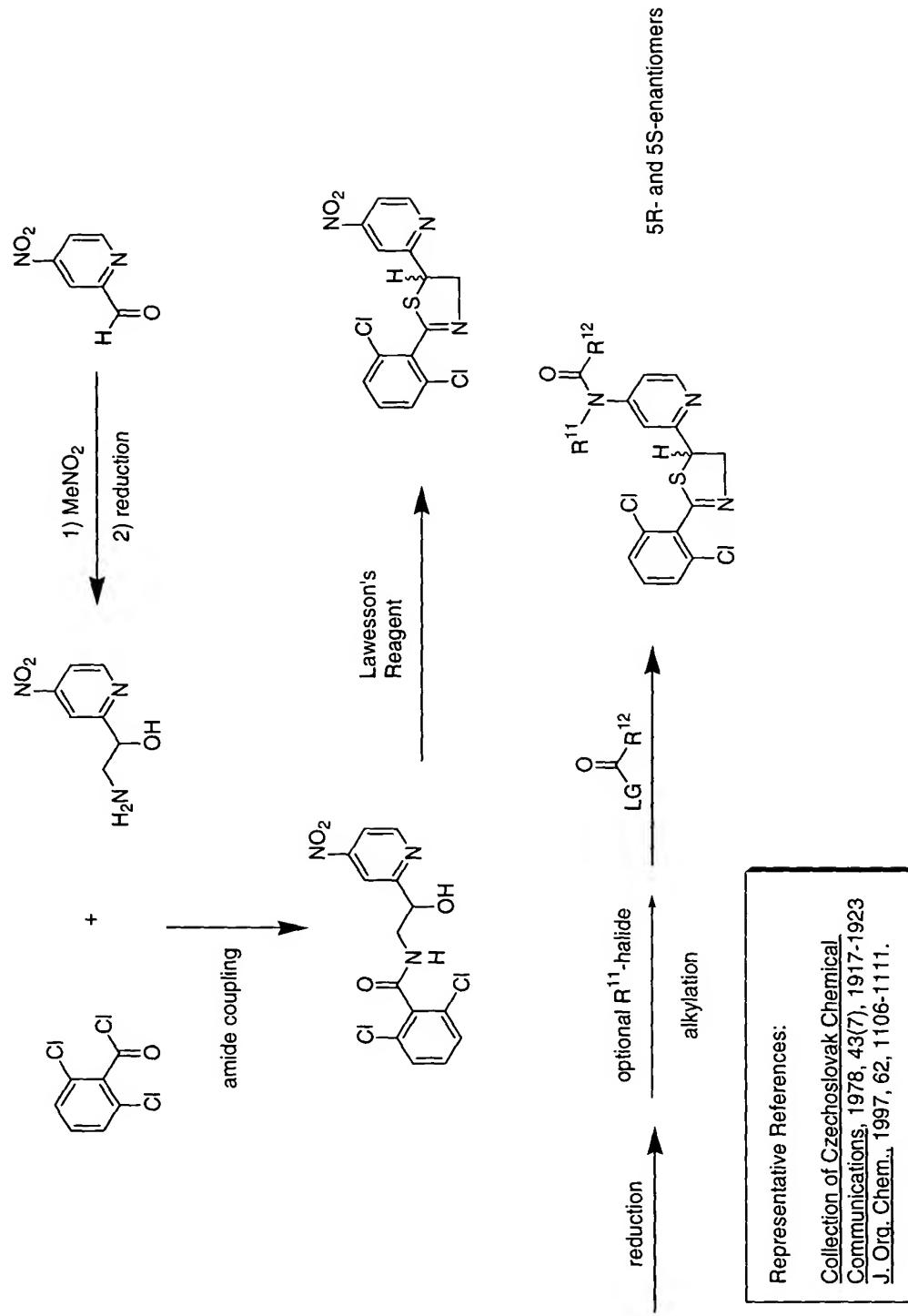


Figure 41  
Reverse 2-Thiazoline

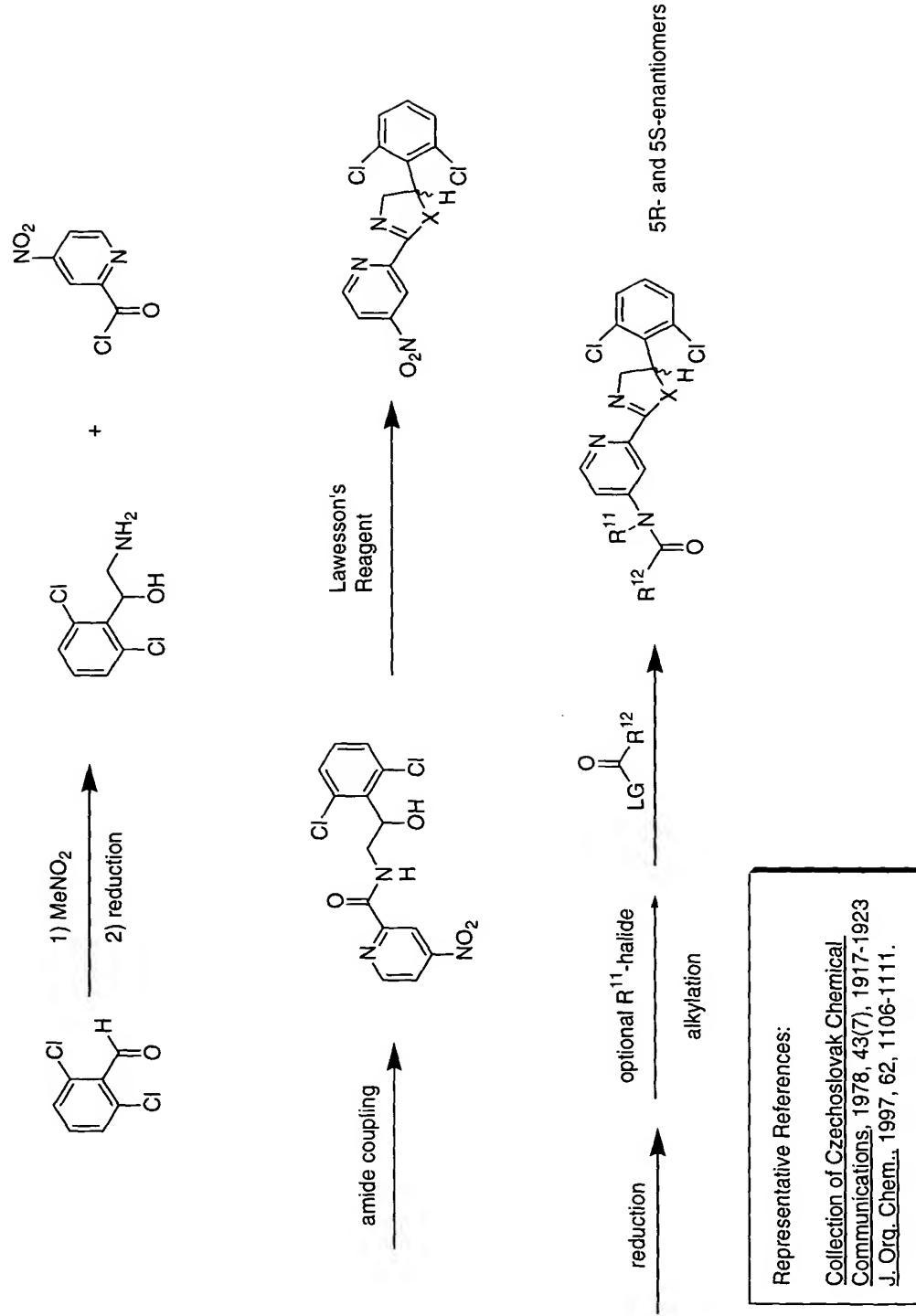
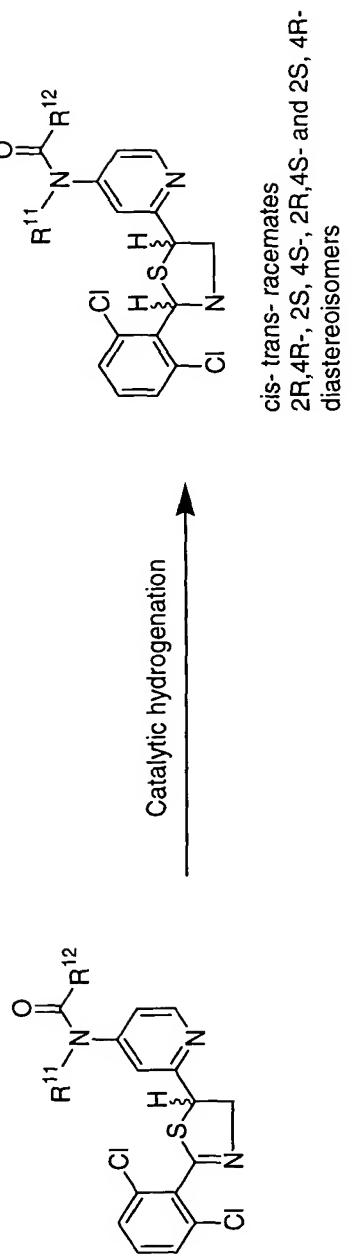


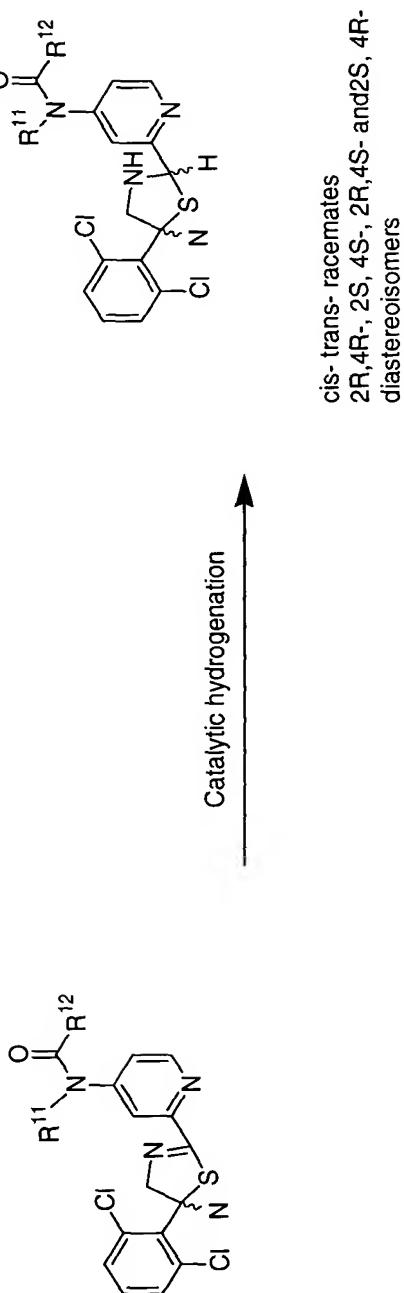
Figure 42  
Thiazolidines



Representative Reference:

See March's Advanced Organic Chemistry 5th Ed  
John Wiley & Sons, Inc. 2001. Topics related to  
catalytic hydrogenation.

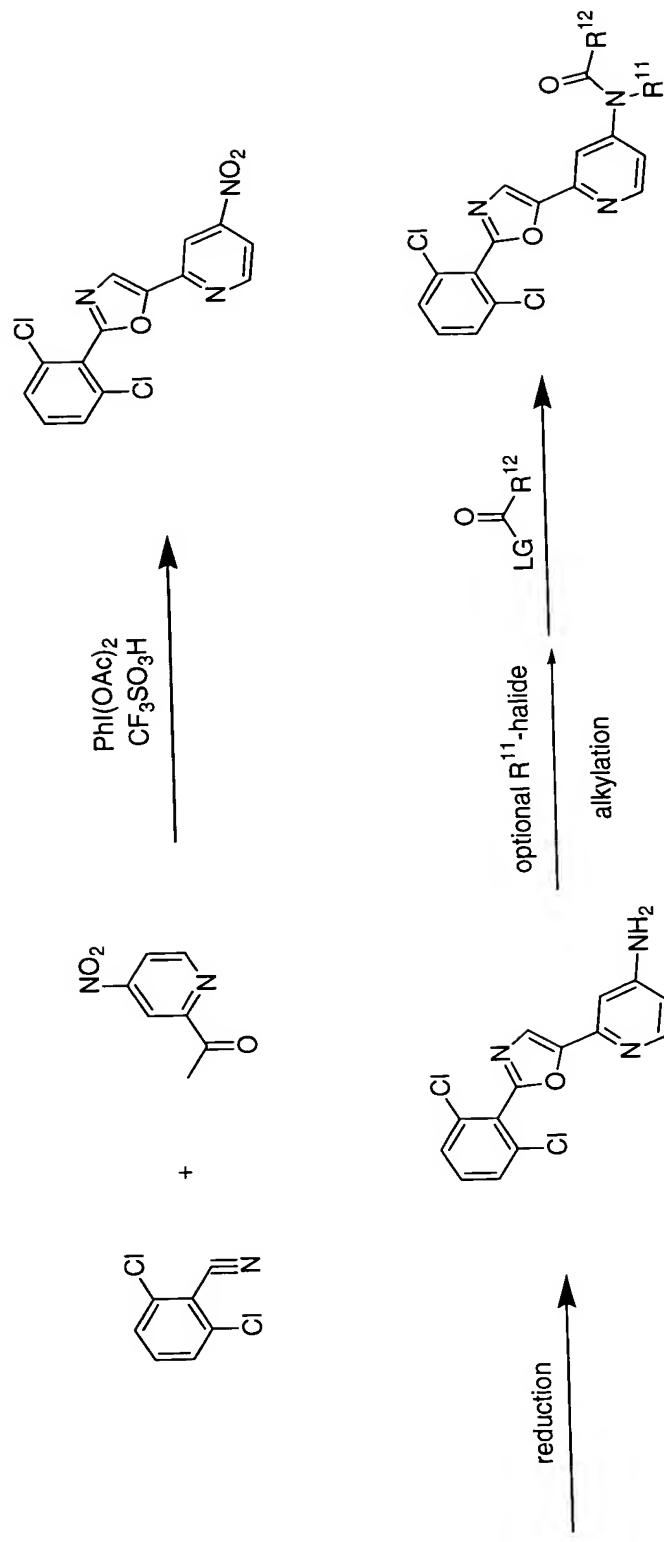
**Figure 43**  
**Reverse Thiiazolidines**



## Representative Reference:

See March's Advanced Organic Chemistry 5th Ed  
John Wiley & Sons, Inc. 2001. Topics related to  
catalytic hydrogenation.

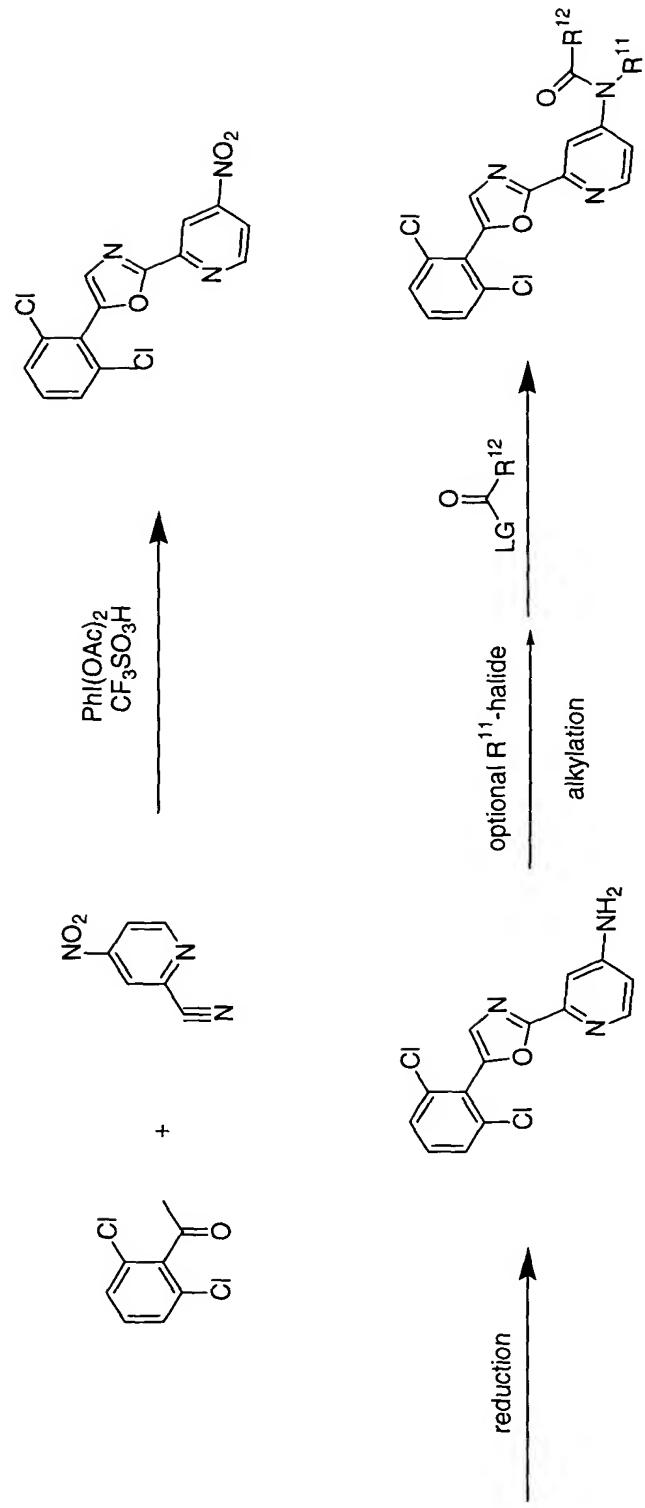
Figure 44  
Oxazole



Representative Reference:

Varma, R.S. et al. *J. of Heterocyclic Chem.*,  
1998, 35(6), 1533-1534

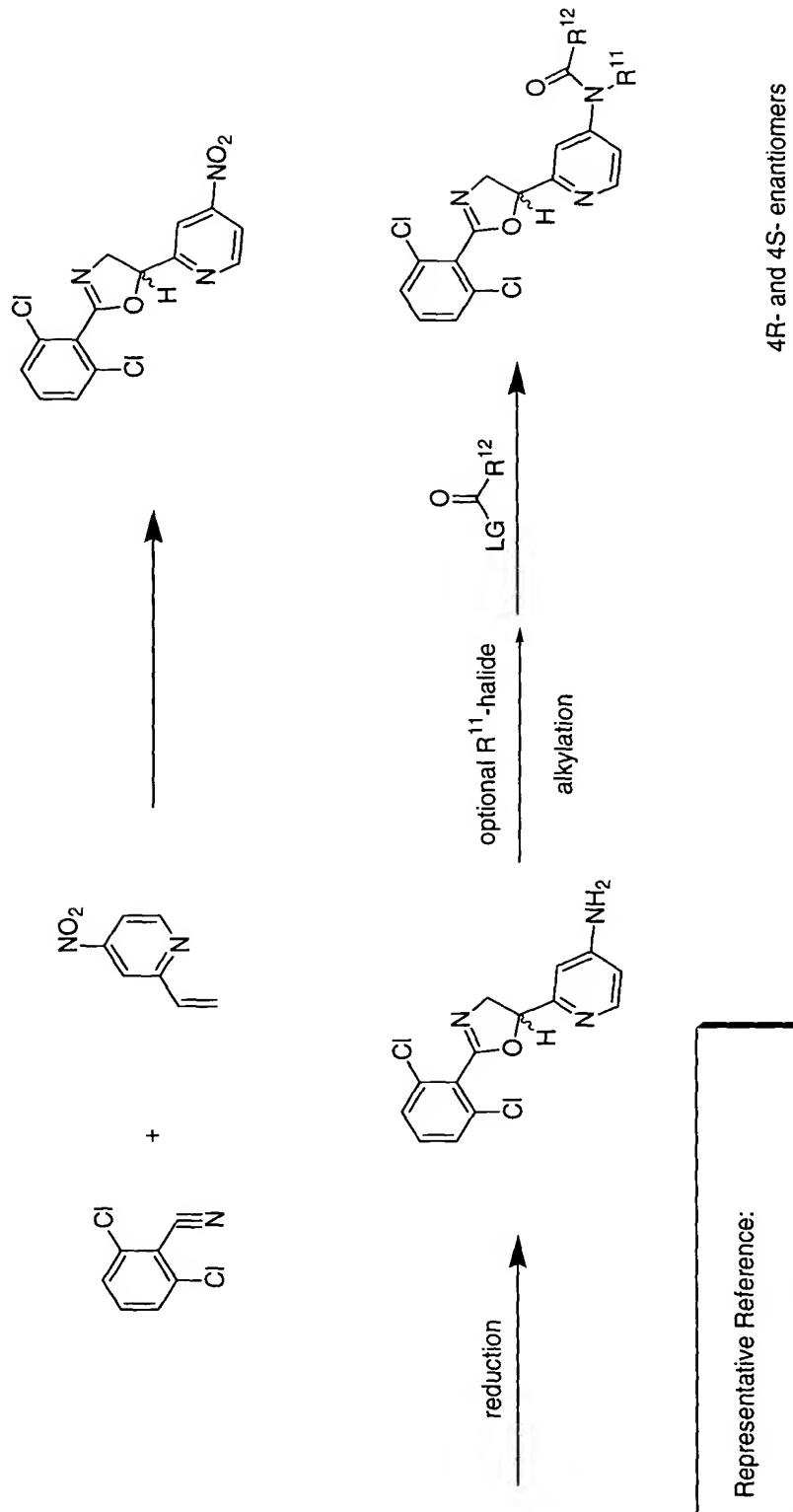
Figure 45  
Reverse Oxazole



Representative Reference:

Varma, R. S. et al. *J. of Heterocyclic Chem.*,  
1998, 35(6), 1533-1534

Figure 46  
2-Oxazoline



Representative Reference:

Li, Q et al *Bioorg&Med. Chem. Lett.*,  
2002, 12(3), 465-469.

Figure 47  
Reverse 2-Oxazoline

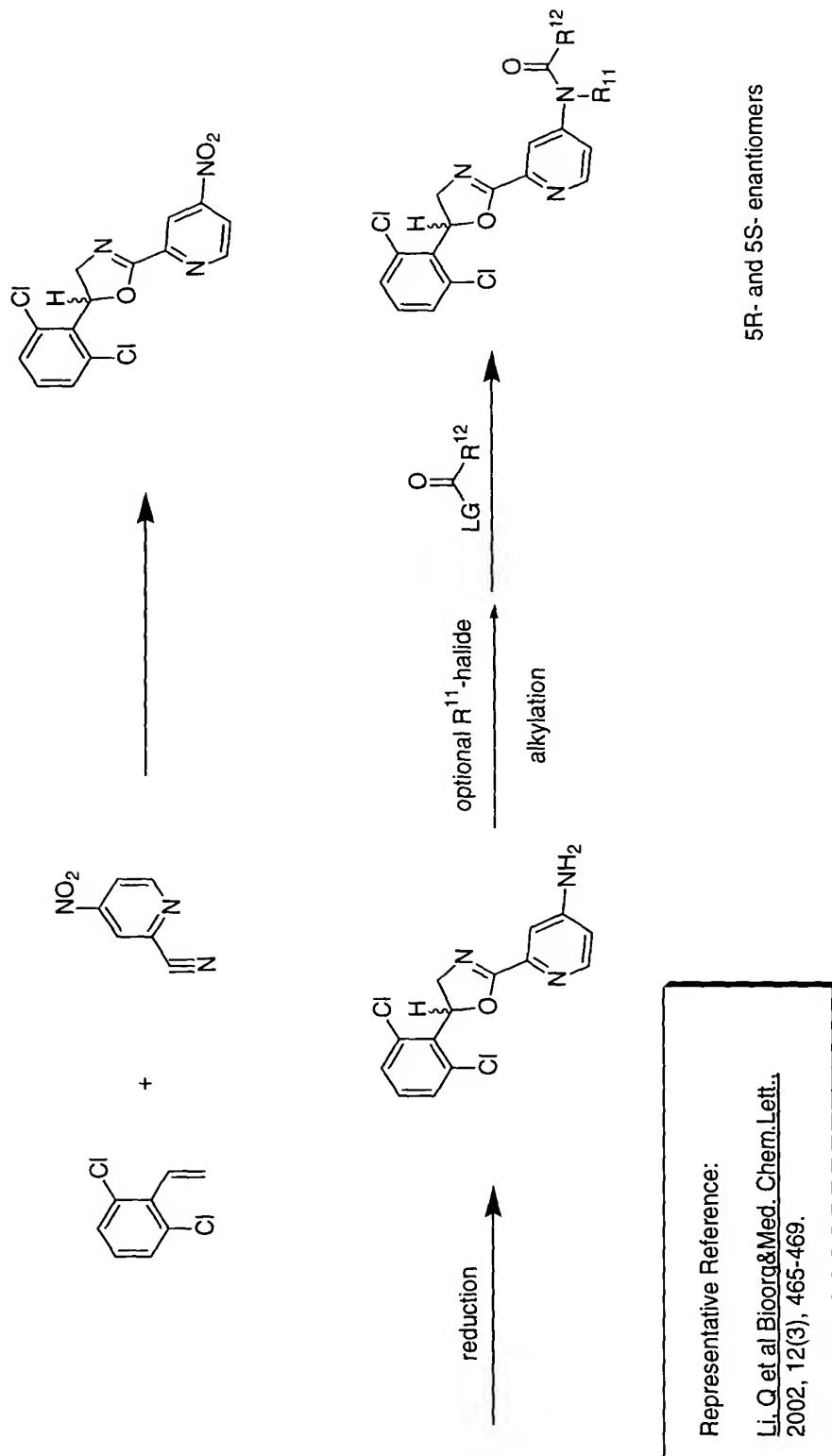
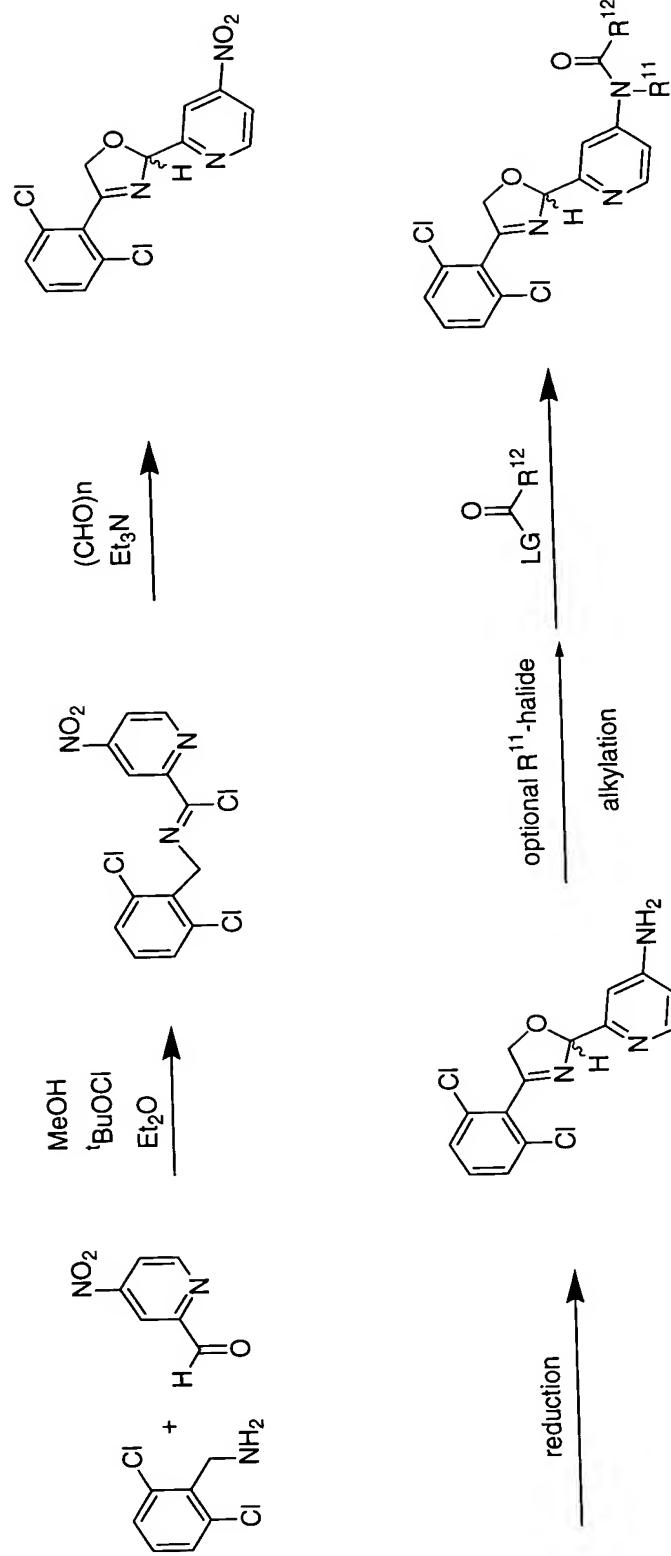


Figure 48  
3-Oxazoline

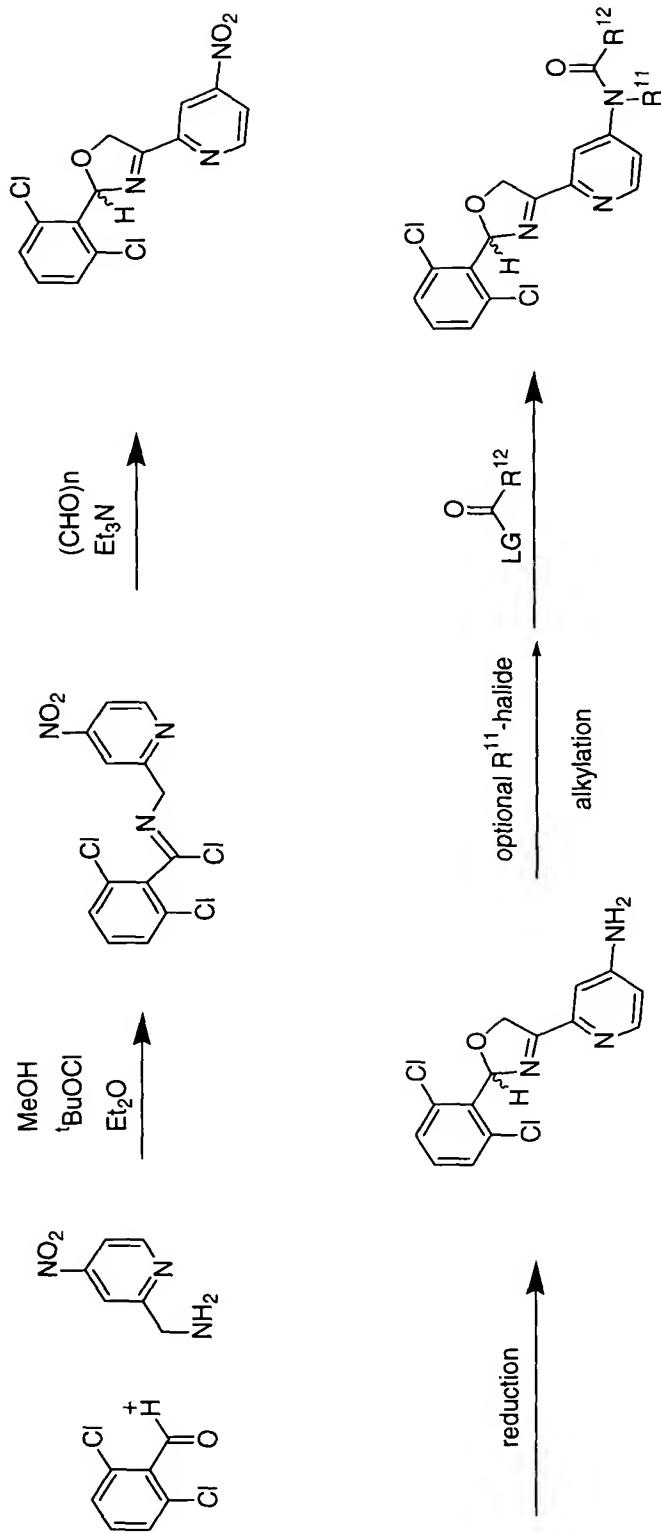


2R- and 2S- enantiomers

Representative Reference:

Paul, H et al, *Chem. Ber.*, 1965, 98, 1450  
Huisgen, R et al, *Angew. Chem.*, 1962, 74, 31.

Figure 49  
Reverse 3-Oxazoline

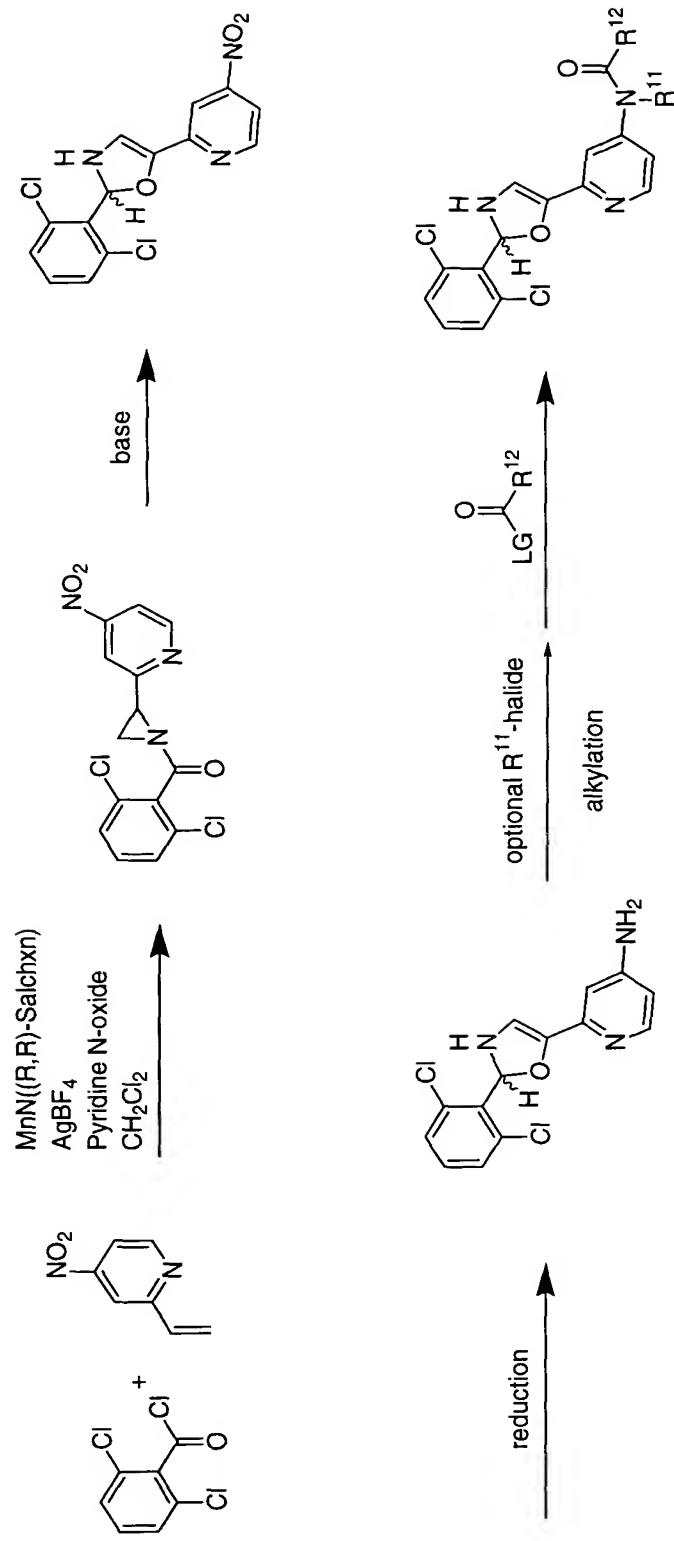


Representative Reference:

Paul, H et al. *Chem. Ber.*, 1965, 98, 1450  
Huisgen, R et al. *Angew. Chem.*, 1962, 74, 31.

2R- and 2S- enantiomers

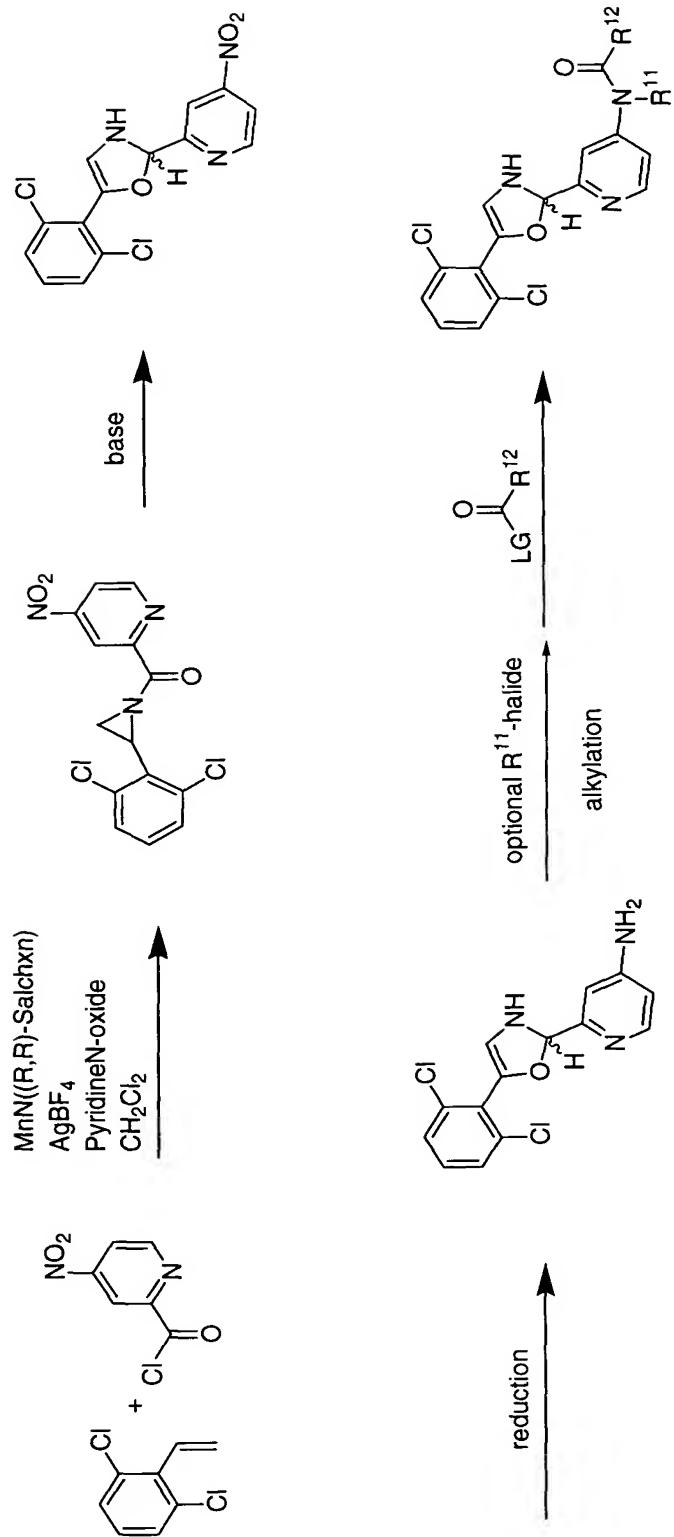
Figure 50  
4-Oxazoline



Representative Reference:

Minakata, S et al., Tet Lett., 2001, 42(51), 9019-9022.  
Stamm, H et al., Chem. Ber., 1990, 123 (11), 2227-2230.

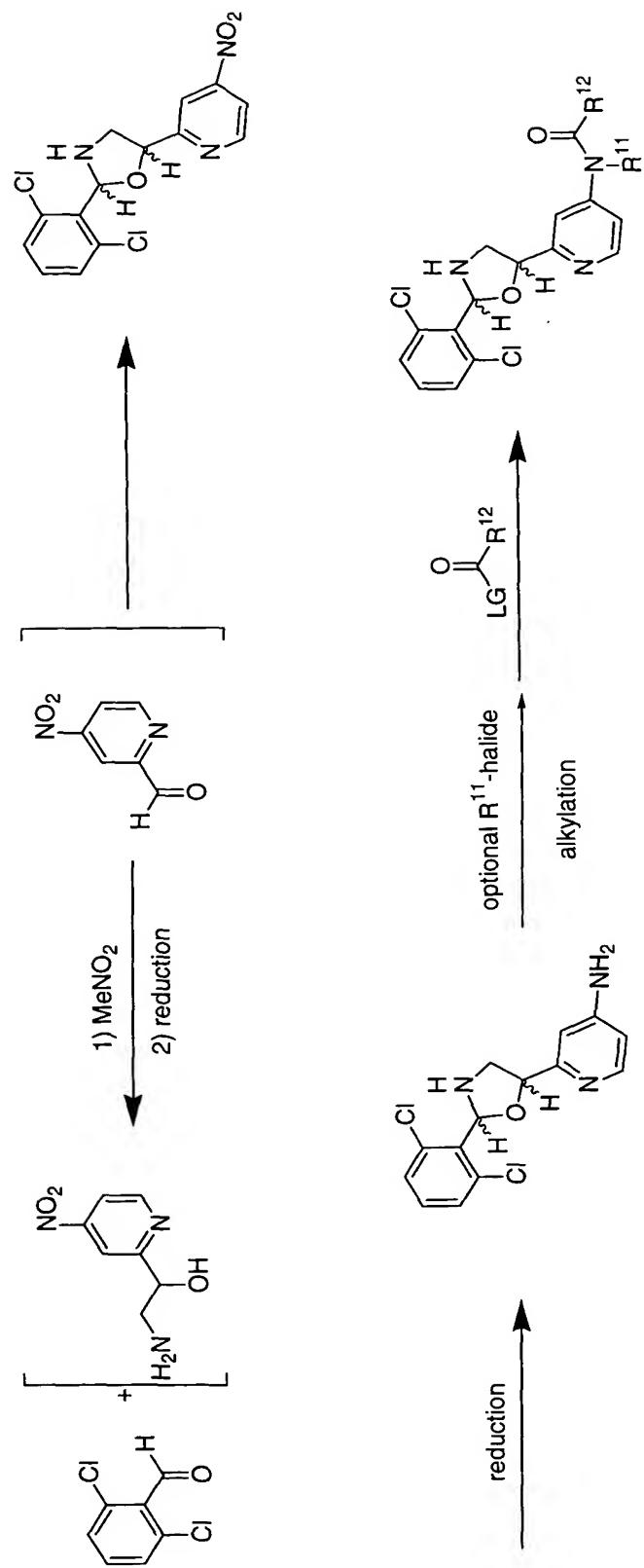
Figure 51  
Reverse 4-Oxazoline



Representative Reference:

Minakata, S. et al., *Tet Lett.*, 2001, 42(51), 9019-9022.  
Stamm, H. et al., *Chem Ber.*, 1990, 123 (11), 2227-2230.

FIGURE 52  
OXAZOLIDINES



Representative Reference:

Schoenenberger, H et al., Archiv der Pharmazie  
1975, 308(9), 717-719.

cis- and trans-  
racemates  
 $2R,5R$ -,  $2S,5S$ -,  $2R,5S$ - and  $2S,5R$   
diastereoisomers

Figure 53  
Reverse Oxazolidines

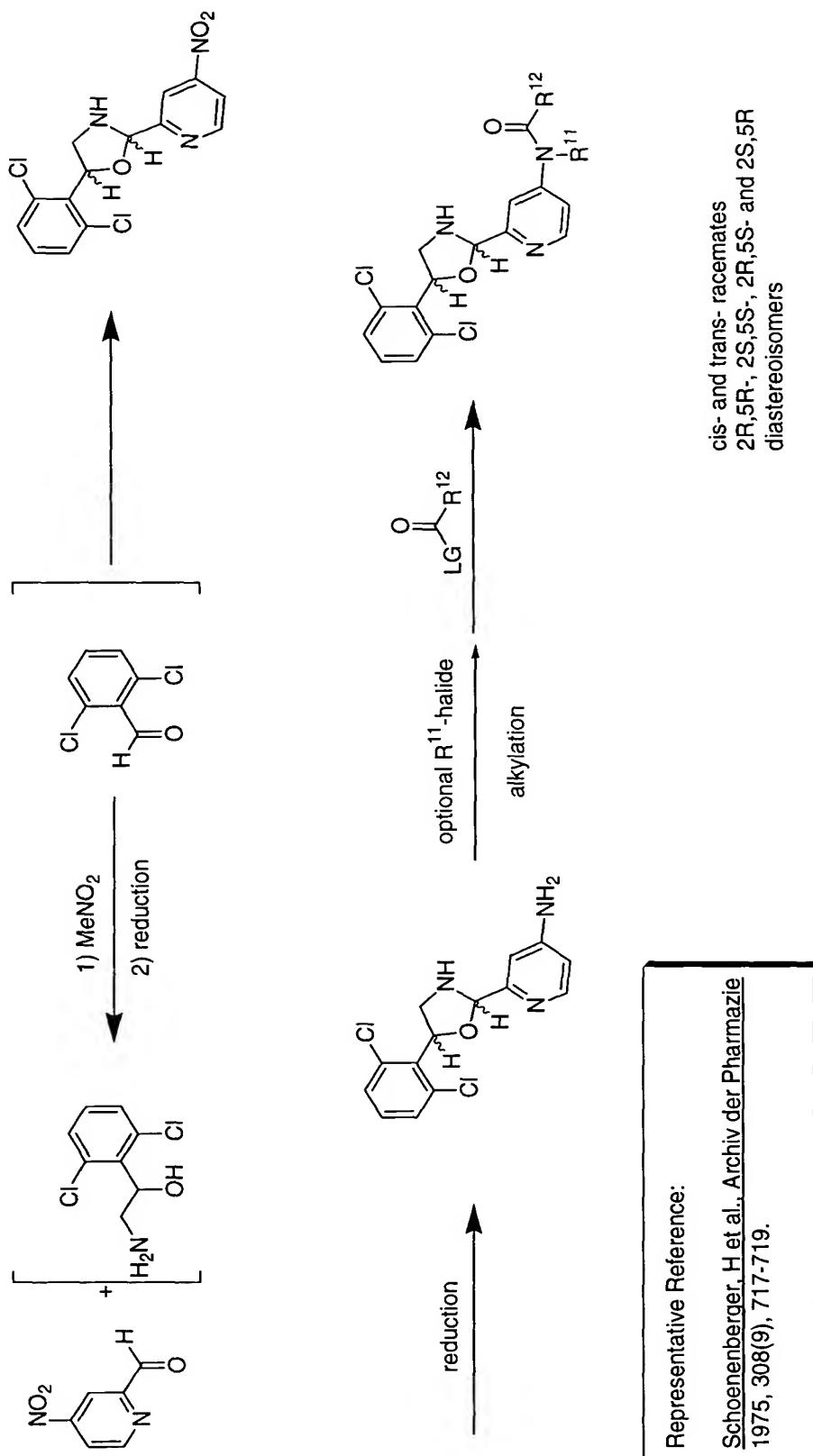


Figure 54  
Imidazole

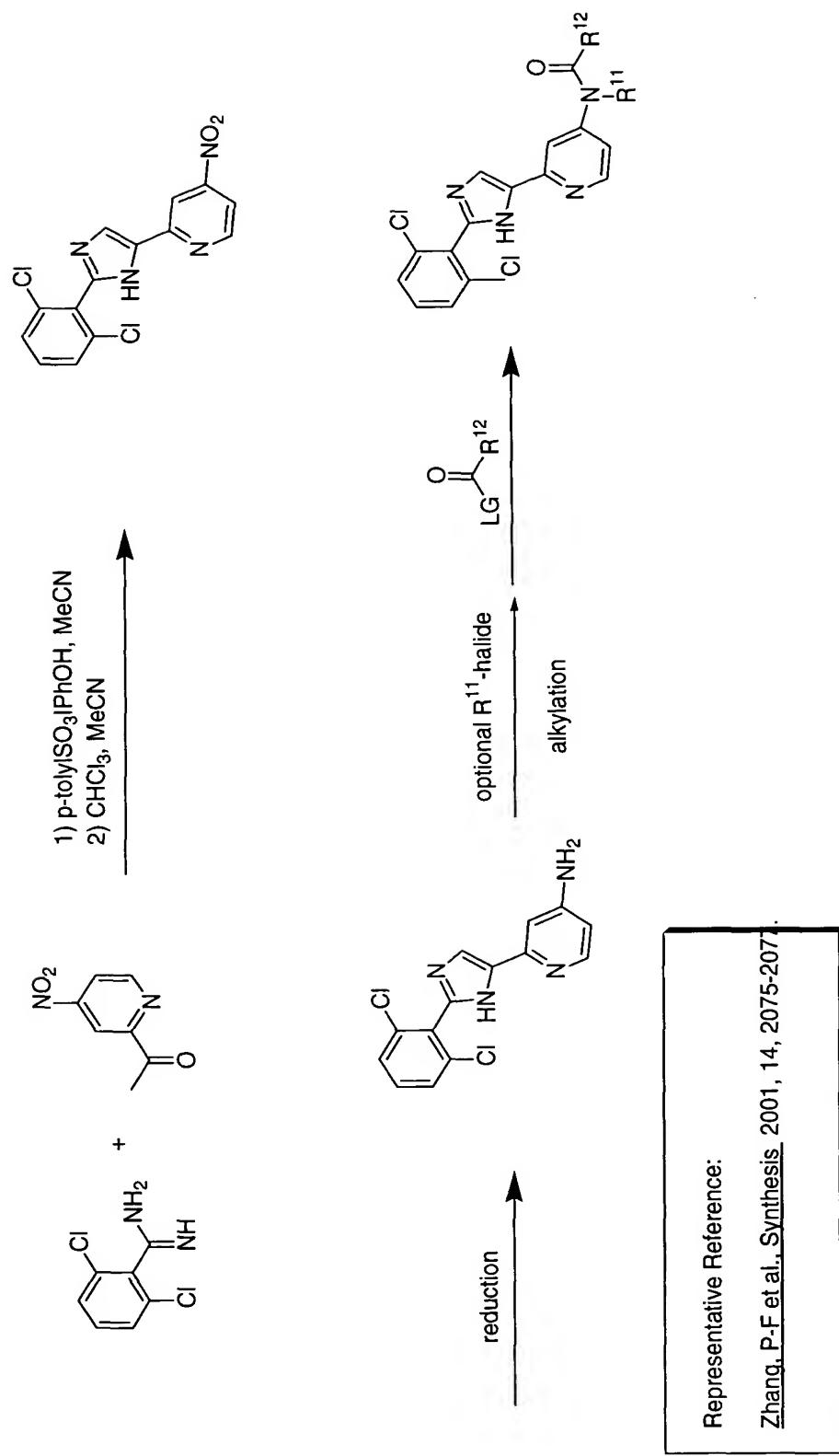


Figure 55  
Reverse Imidazole

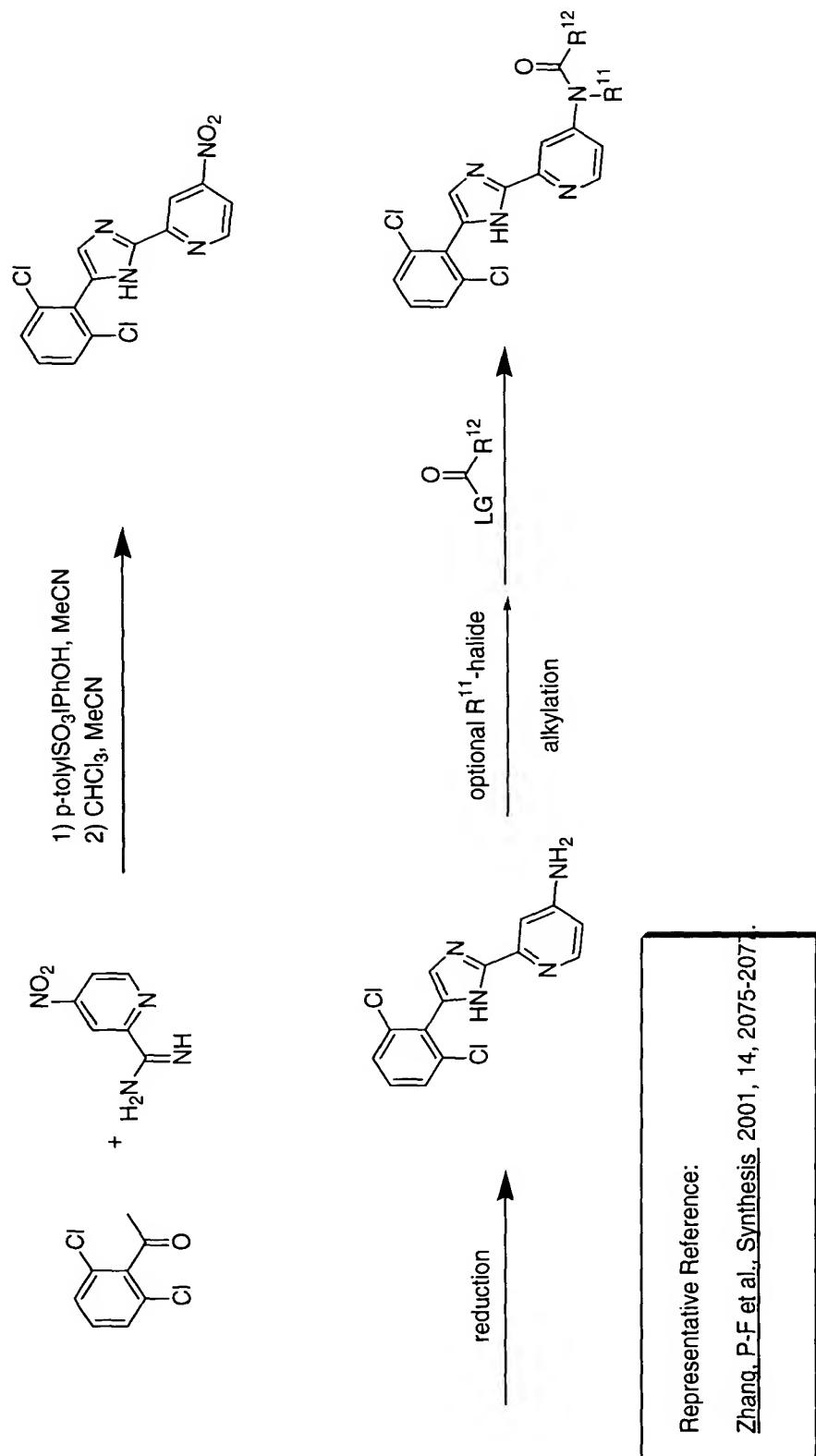


Figure 56  
2-Imidazoline

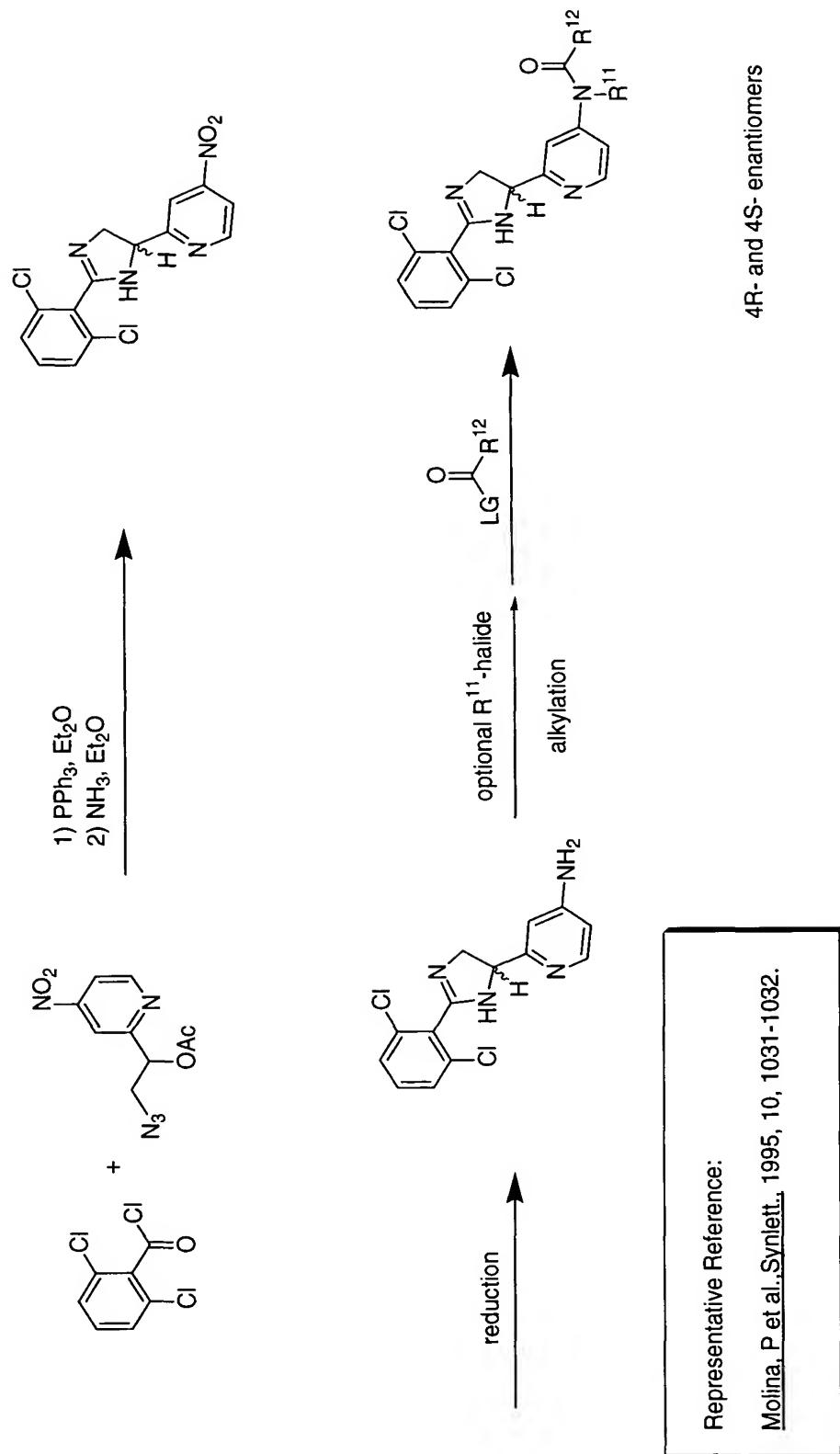


Figure 57  
Reverse 2-Imidazoline

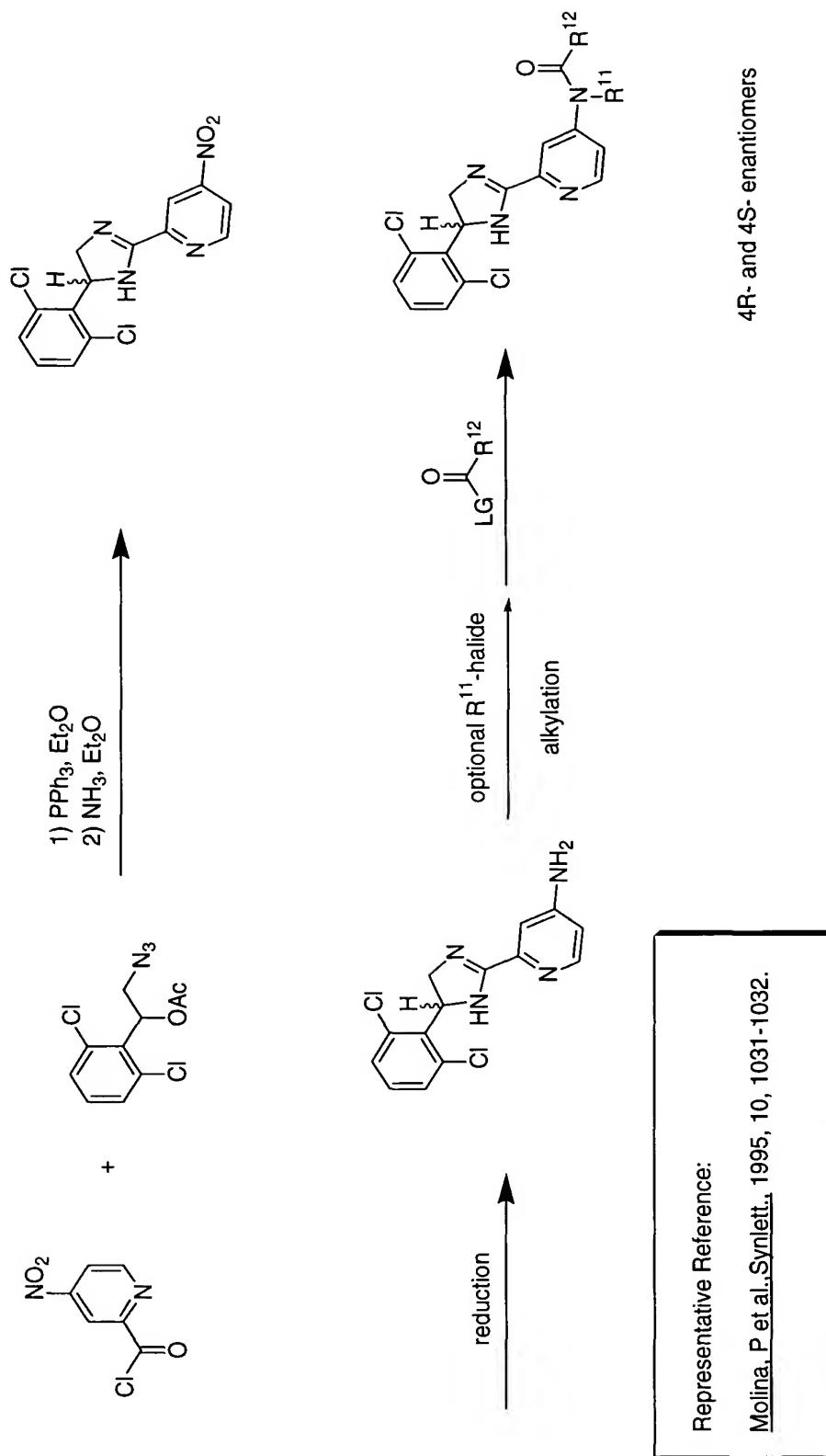


Figure 58  
3-Imidazolines

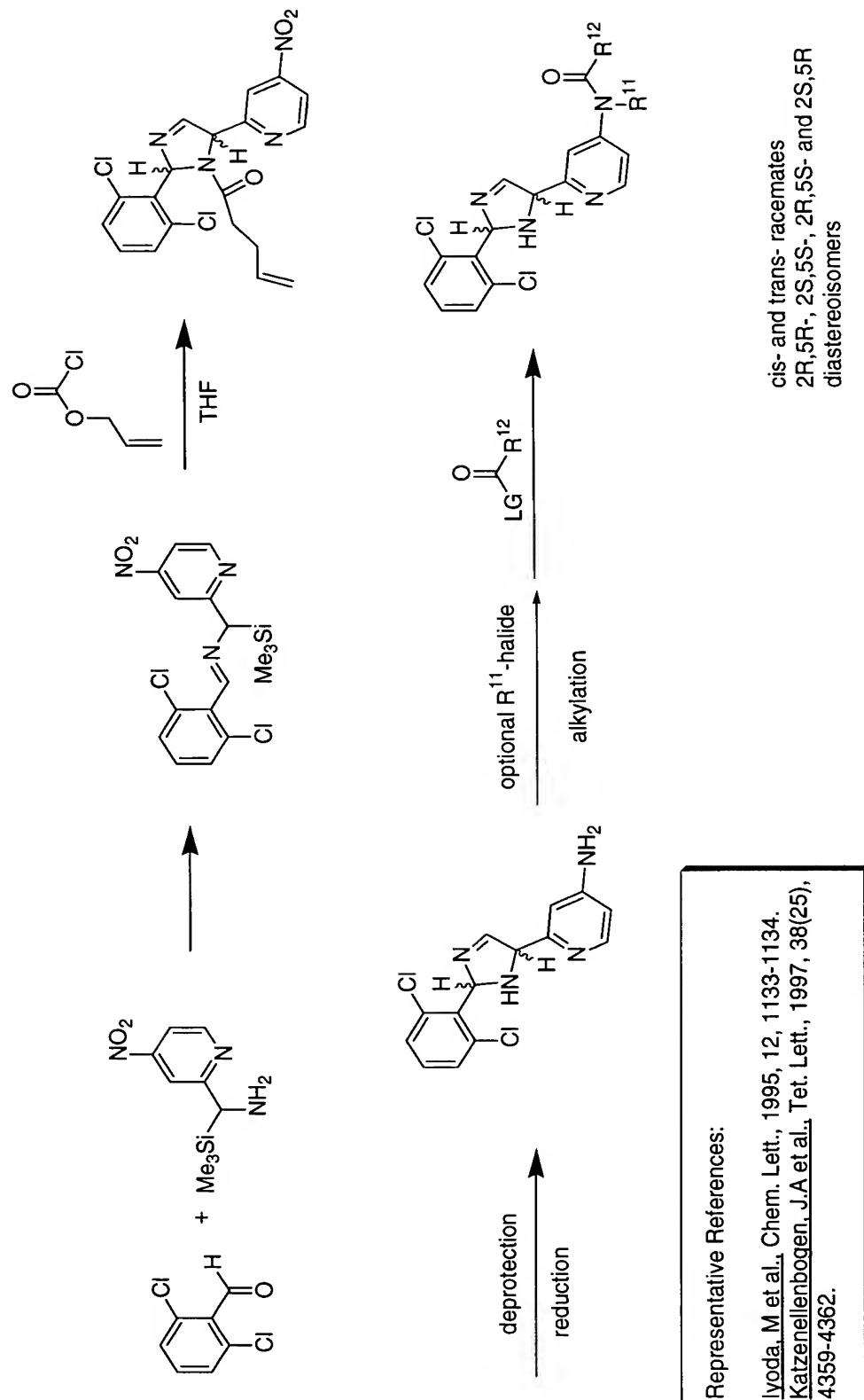


Figure 59  
Reverse 3-Imidazolines

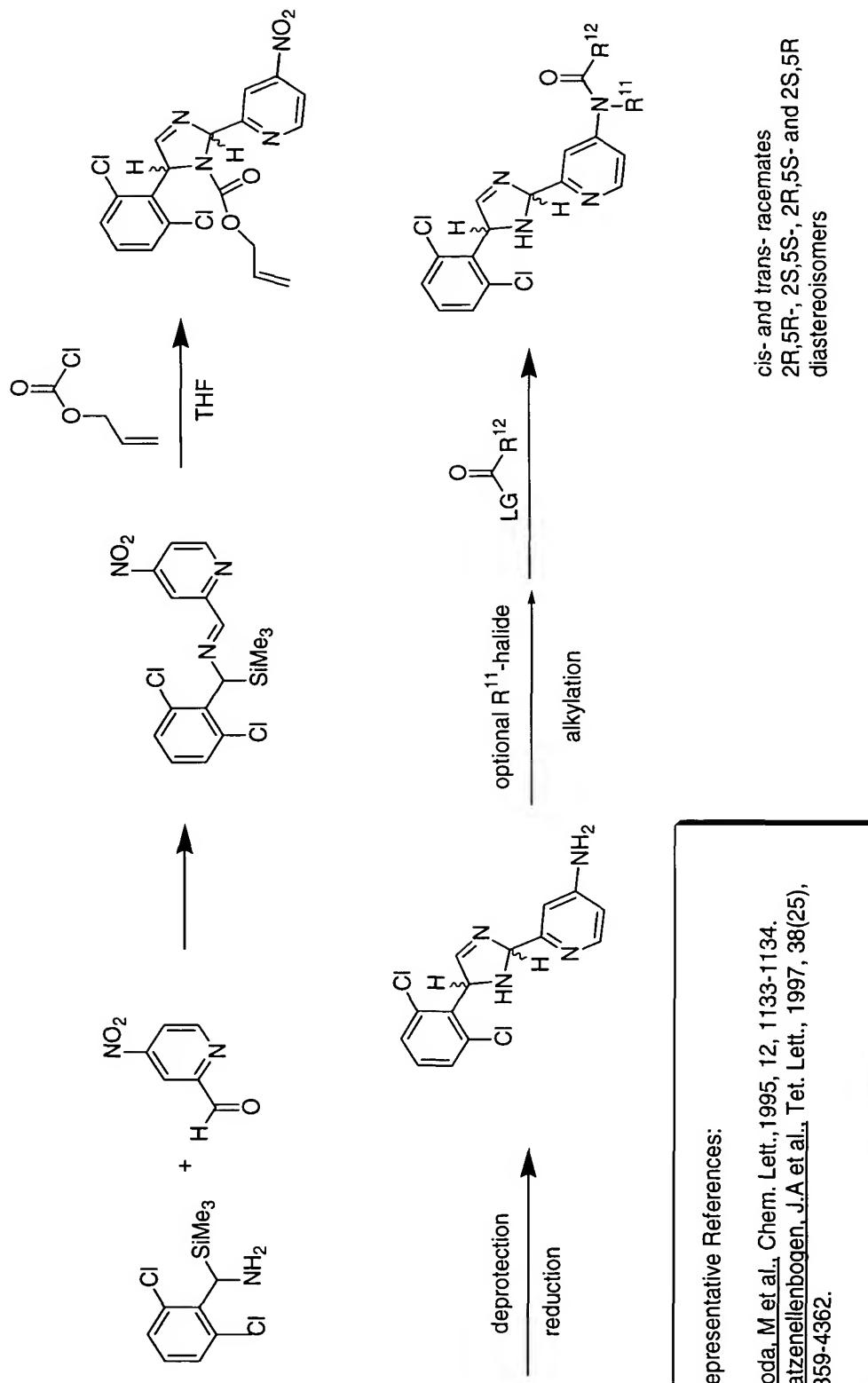
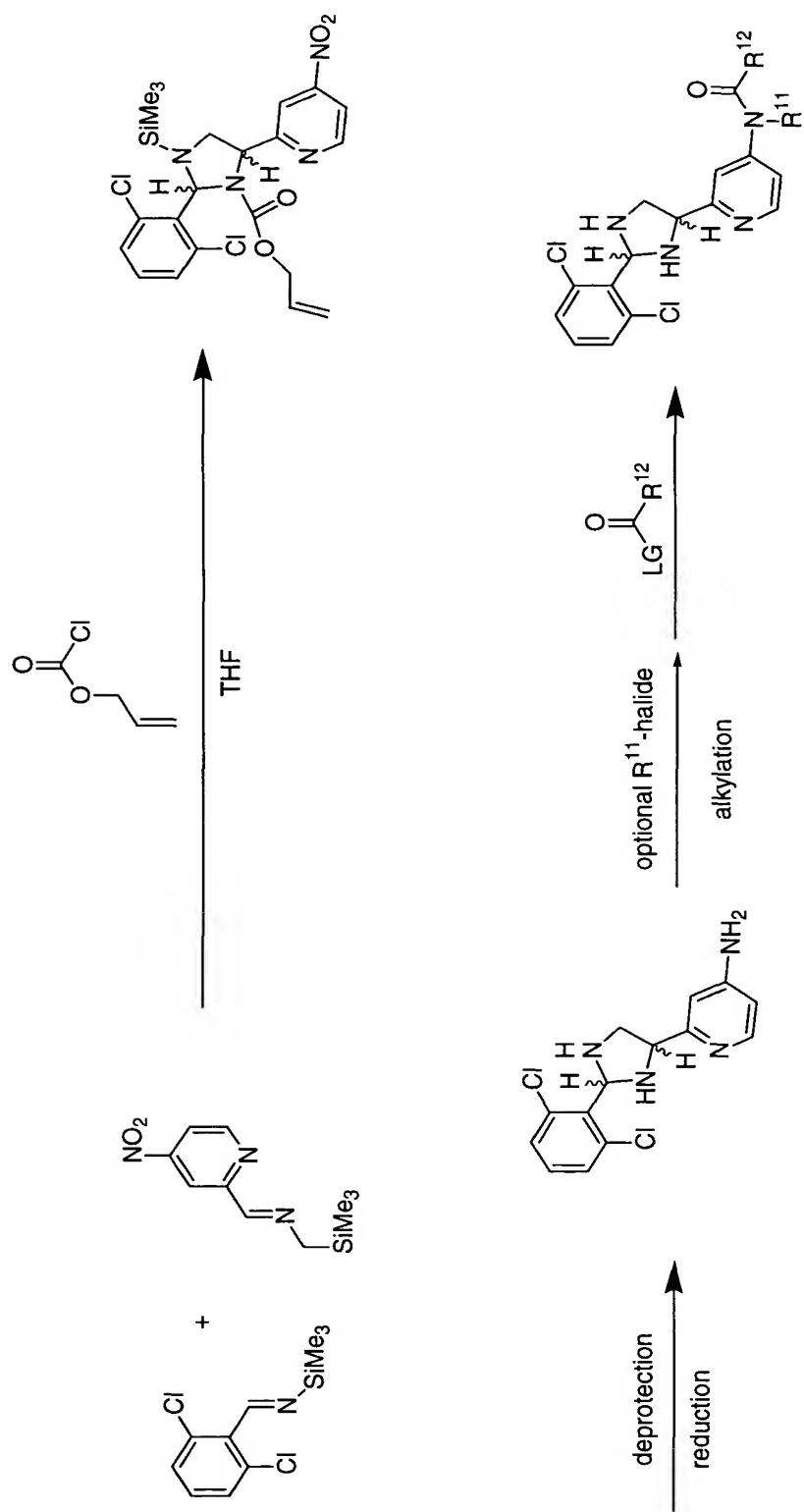


Figure 60  
Imidazolidines



cis- and trans- racemates  
 $2R,4R$ ,  $2S,4S$ ,  $2R,4S$ - and  $2S,4R$   
 diastereoisomers

Representative References:  
 Achiwa, K et al *Chem. Lett.* 1981, 1213.

Figure 61  
Reverse Imidazolidines

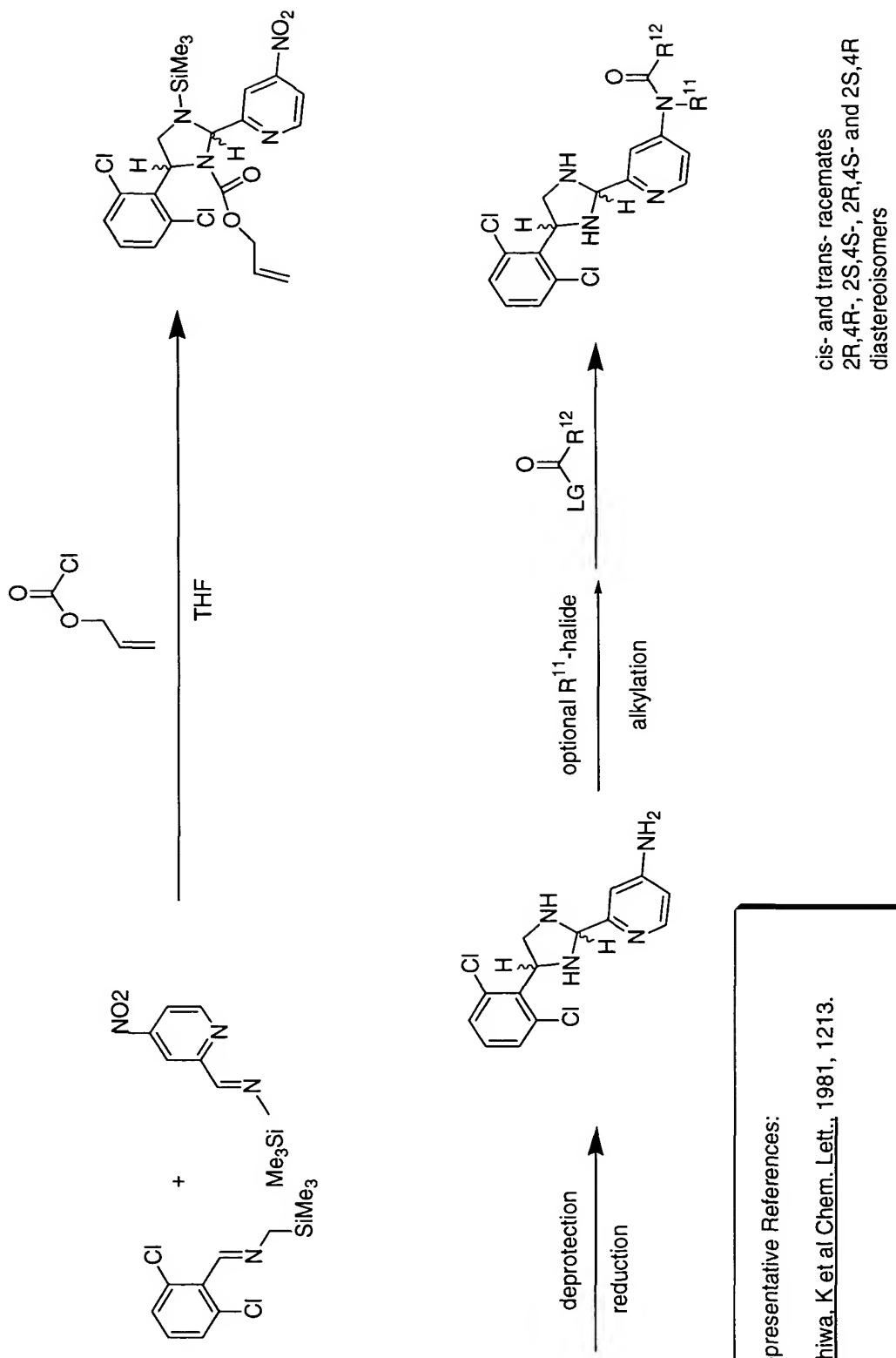
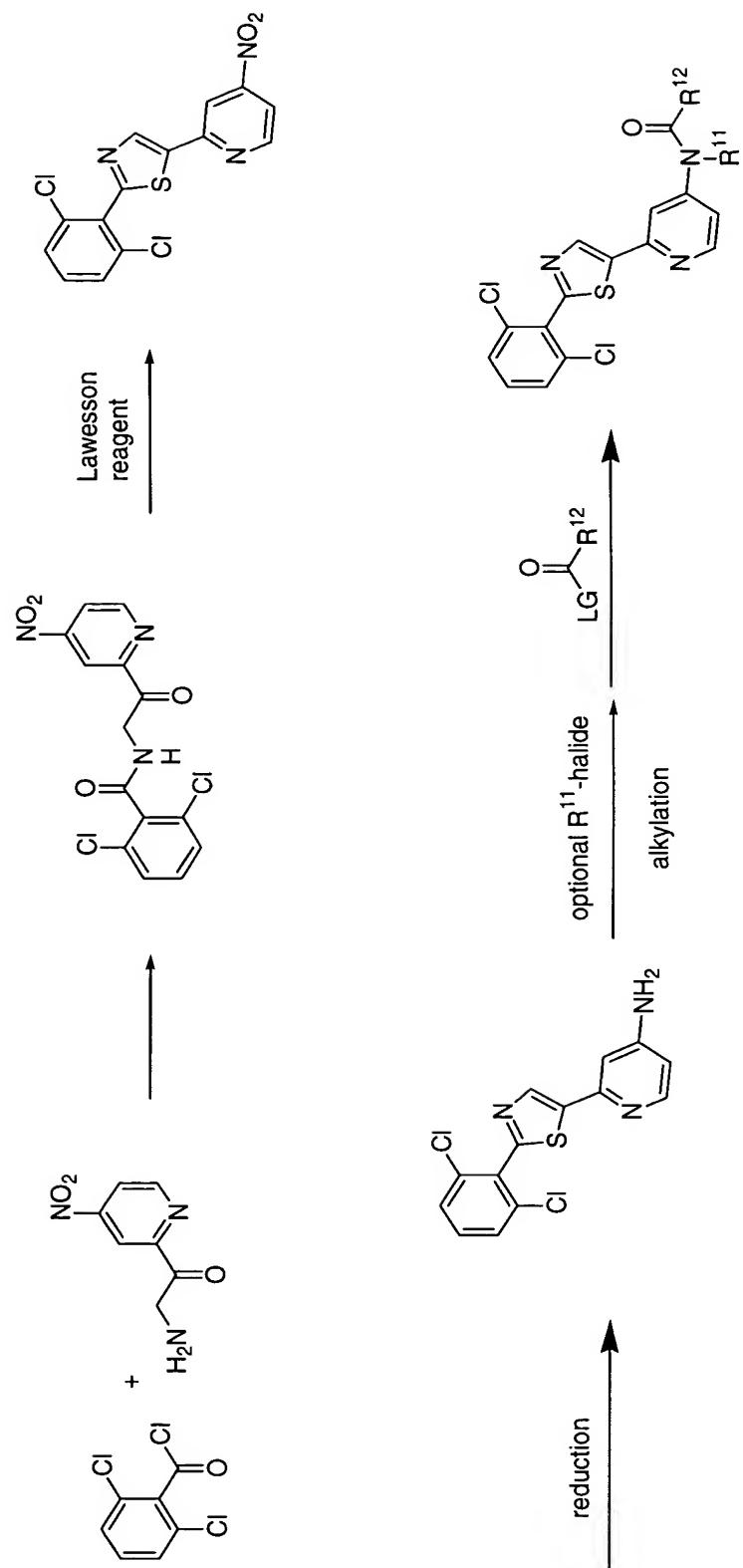
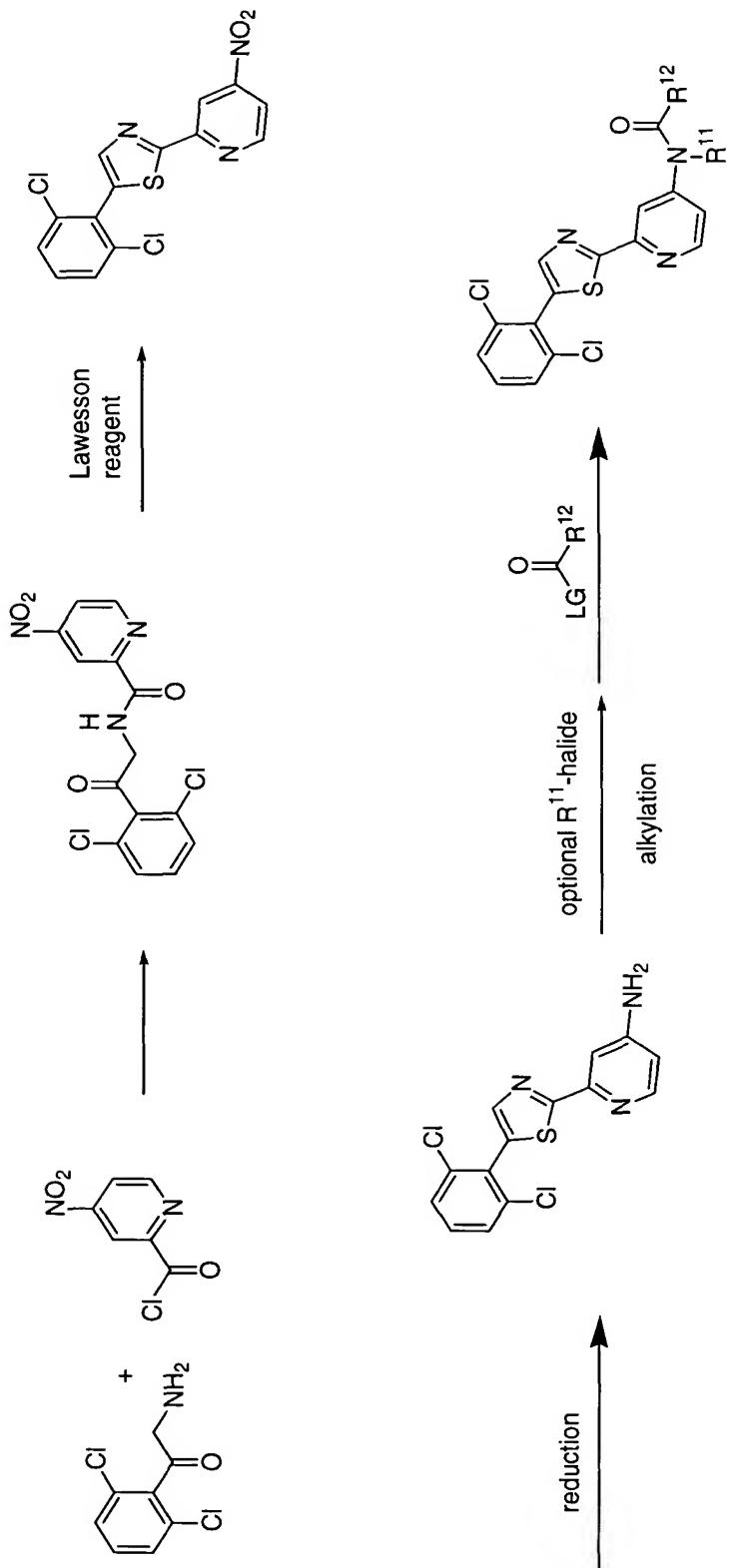


Figure 62  
Thiazole



Representative References:  
Lhoták, P. et al. Collect Czech Chem., 1993, 58 (11), 2720-2728.

Figure 63  
Reverse thiazole



Representative References:  
Lhoták, P. et al. *Collect Czech Chem.*, 1993, 58 (11), 2720-2728.